1959 | 1960

Loyola
COLLEGE
MONTREAL · CANADA

- ARTS
- SCIENCE
- ENGINEERING
- COMMERCE

ad majorem dei gloriam

A.M.D.G.   1959 | 1960

General Calendar

Loyola College

ARTS
SCIENCE
ENGINEERING
COMMERCE
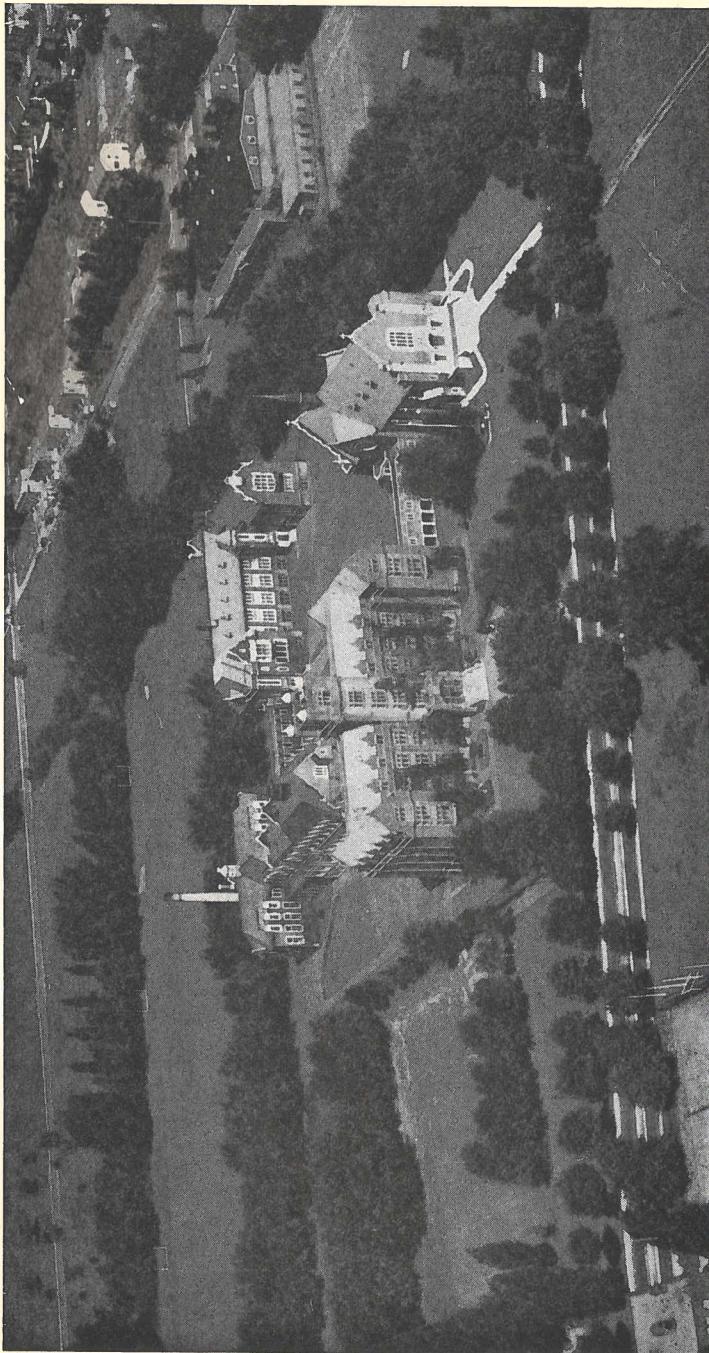
Associated Screen News Ltd.
Stadium

Chapel

Junior Building

Refectory Building
New Central Building
Administration Building

COLLEGE REOPENS
Monday, September 14th

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ACADEMIC CALENDAR

1959 - 1960

Monday, Aug. 3.......Last day for applications for supplemental examinations.

Monday, Aug. 24......Supplemental examinations begin.

Monday, Sept. 14......Registration of Freshmen students at 10.00 a.m.

Tuesday, Sept. 15......Registration of Second, Third and Fourth Year students: 9.00 to 12.00 Noon and 1.00 to 5.00 p.m.

Wednesday, Sept. 16...10.00 a.m.—Mass of the Holy Spirit in College Chapel.

11.00 a.m.—The Rector's address to the student body in the College Auditorium.

2.00 p.m.—College Retreat begins.

Monday, Oct. 12.......THANKSGIVING DAY—Full holiday.

Sunday, Nov. 1........ALL SAINTS' DAY.

Friday, Nov. 6.........10.00 a.m.—Solemn Anniversary Mass for the deceased members of Staff and Students.

Tuesday, Dec. 8.......Feast of the IMMACULATE CONCEPTION. Holy Day of Obligation—Full holiday.

Wednesday, Dec. 16....Mid-year tests begin in all faculties.

Tuesday, Dec. 22......Christmas vacation begins.

Thursday, Jan. 7.......Mid-year Final Examinations in all faculties.

Tuesday, Jan. 12......Second Term Lectures begin.

Friday, Feb. 5.........FATHER RECTOR'S HOLIDAY.

Monday, March 7......Feast of ST. THOMAS AQUINAS.

Friday, March 11......Celebration of the Feast of ST. IGNATIUS LOYOLA.

Thursday, March 17...ST. PATRICK'S HOLIDAY.

Wednesday, April 13...Last day of Lectures.

Monday, April 25......Final Examinations begin.

Saturday, May 28.....Convocation.

REV. DAVID ASSELIN, S.J.
Theology.

MR. LAWRENCE BESSNER, B.Comm., C.A.
Accounting.

MR. LAWRENCE BOYLE, B.A., B.Comm.,
Economics.

MR. JOHN BUELL, M.A.
English.

REV. W. D. CONNOR, S.J.
Chemistry.

MR. J. P. DOYLE, M.A.
Philosophy

REV. STANLEY DRUMMOND, S.J.,
Biology.

DR. KURT EKLER, Ph.D.,
Chemistry.

REV. ALOYSIUS GRAHAM, S.J.,
Chemistry.

MR. FRANCIS GUADAGNI, B.Eng.,
Engineering.

MR. FRANCIS HAYES, B.Sc.,
Economics.

REV. J. E. HEALEY, S.J.,
History.

REV. G. HOFFMANN, S.J.,
Philosophy.

MR. L. HOLLAND, M.B.A.,
Economics.

VERY REV. G. F. LAHEY, S.J.,
English.

MR. LEO LEVI, B.Comm., C.A.,
Accounting.

MR. E. A. MACPHEE, B.A.,
Physics.

REV. H. J. MACPHEE, S.J.,
Applied Mathematics.

REV. G. MACGUIGAN S.J.,
English.

REV. HUGH MACKINNON, S.J.,
History.

REV. W. J. MCDONNELL, S.J.,
Chemistry.

DR. DAVID MCDOUGALL, Ph.D.,
Geology-Mineralogy.

DR. DONALD MCELCHERAN, M.Sc., Ph.D.,
Chemistry.

MR. J. MCMAHON, C.A.,
Accounting.

REV. A. NELSON, S.J.,
French.

REV. ERIC O'CONNOR, S.J.,
Mathematics.

REV. N. O'NEILL, S.J.,
Engineering.

MR. JOHN O'BRIEN, M.A.,
Economics.

REV. H. PHELAN, S.J.,
Philosophy-Sociology.

MR. ANTHONY PRILLO, B.Sc., M.A.,
Mathematics.

MR. LEO A. SAINT-PIERRE, B.C.L.,
Commercial Law.

REV. H. SMEATON, S.J.,
Theology-Classic.

REV. E. SMITH, S.J.,
Latin-Greek.

REV. L. STANFORD, S.J.,
Philosophy-Theology.

MR. R. STOECKEL, B.A.,
Public Speaking.

MR. F. TOMSCHA, M.Sc.,
Physics.

REV. H. WARDELL, S.J.,
Physics-Engineering.

MR. ERIC WHITEHALL, C.A.,
Accounting-Auditing.

MR. EDWARD MEAGHER, B.A., B.Ph.Ed.,
Athletic Director.

MAJOR PAUL CARTEN, C.O.,
Loyola College, C.O.T.C.

MR. H. ROUND,
Placement Officer,
(National Employment Services).

HISTORY

Loyola College, conducted by the Fathers of the Society of Jesus, was incorporated by an act of the Quebec Legislature on February 2nd, 1899. On February 5th, 1899, Laval University officially extended its Bachelor of Arts Degree to Loyola students under the special privileges granted by the Holy See, in the Constitution "Jamdudum", which gave to Loyola College autonomy in the organization of its courses of study and in the setting and correction of examinations. A similar arrangement was made with the University of Montreal when it began.

Loyola College instituted its Faculty of Science in 1943 and its Faculty of Commerce in 1948. All courses of these two Faculties are conducted at the College, though, by special arrangement, the curriculum and examinations come under the supervision of the University of Montreal.

The first site of Loyola College was on St. Catherine Street when it began its classes in 1896. Two years later, in 1898, the site was changed to Drummond Street in order better to accommodate the growing number of students, and, eighteen years later, in 1916, the whole College moved to its present site in the West End. The six buildings are of English Collegiate Gothic in the Tudor and early Renaissance style. The Stadium, or indoor rink, has the ice-surface of regulation size, and artificial ice is part of its equipment.

SYSTEM OF EDUCATION

The educational system is substantially that of all Jesuit Colleges which is clearly set forth in the "Ratio Studiorum". Education in its completest sense, as understood by the Fathers of the Society, is the full and harmonious development of all the faculties. It is not, therefore, mere instruction, nor communication of knowledge. In fact, the acquisition of knowledge, though it necessarily accompanies any right system, is a secondary result of education. Learning is the instrument of education not the outcome. Its outcome is culture, mental and moral, and such studies, languages or sciences are chosen as will most effectively further this end.

In the Arts Course the preference is given to the Languages and Philosophy over all other subjects, as the fittest instruments to promote this intellectual and moral growth. But this preference is not exclusive. The importance of mathematics and the natural sciences, as instruments of education, has not been under-estimated.

Likewise in the Science, Engineering and Commerce Courses, the student, while receiving a training in his chosen branch of studies, must also take Theology, English, French, Philosophy and Public Speaking.

MORAL AND RELIGIOUS TRAINING

The College authorities are convinced that without religion there can be no perfect education in the true sense of the word, that is to say, no complete and harmonious development of the intellect and the heart of man. They hold, furthermore, that religious truth, being definite and certain like any other truth, is as susceptible of being taught as languages or mathematics. Hence religion is an integral part of the curriculum. The students are required to comply with their religious obligations regularly, and to make annually a spiritual retreat of three days. Societies and other associations are also formed for the fostering of piety.

Library

The *College Library* comprises about thirty-five thousand volumes; of these more than six thousand volumes are in the College Reading Room where, also, the most useful current magazines are always on file.

A growing record collection is available for student use in the Music Room attached to the Library.

STUDENT ORGANIZATIONS

Eligibility

Students taking part in dramatic performances, public debates, oratorical or elocution contests, or athletic events, as well as all officers of student organizations are subject to the following eligibility rules: (1) They must have shown satisfactory conduct and application and must remain in good academic standing; (2) they must not be under censure at the time of their election or appointment.

Council of Student Representatives

This is the highest administrative body among the students. Its officers are elected by the students and they are the official representatives of the students of Loyola College.

The Apostleship of Prayer, League of the Sacred Heart

The object of the Apostleship is two-fold: first, to instil into the students that apostolic spirit which, as public men, it is hoped they will later on exercise in the world; and secondly, to join in the great work of reparation for the outrages daily offered to Our Lord.

The public exercises, besides the regular Promoters' meetings, consist of monthly meetings of reparation to the Blessed Sacrament, on the First Friday of each month.

Sodality of Our Lady

This is an association established by the Society of Jesus four centuries ago and commissioned by Pope Pius XII in 1948 to meet the needs of the Church by forming competent lay leaders for the apostolate. The members conduct regular meetings in order to assist the intellectual, social and spiritual progress of the College, and to promote work in the hospitals and among the poor and underprivileged of the City.

Athletic Association

The Loyola College Athletic Association was formed to aid the Director of Athletics in the promotion and supervision of all athletics in the College, and to create and foster a proper college spirit among the students.

An Athletic Board of Control, composed of Faculty members, guides the policy and over-all direction of the Physical Education program.

Other Student Organizations

The Amphora Literary Review, The Arts Society, The Boarders' Society, The Choral Society, The Commerce Society, The Debating Society, The Drama Group, The Loyola News, The Loyola Review, The St. John Berchmans Society, The Science Society, The Winter Carnival Committee.

Placement Bureau

This is a special service to assist undergraduate students and graduates in obtaining summer and permanent employment. The Bureau also arranges for the officers of a number of industries and corporations to visit the campus each year in order to interview Loyola undergraduates and graduates for positions.

The Loyola College Alumni

The Loyola College Alumni has as its object to preserve and strengthen the ties of fellow-feeling and friendship among former students of the College and to afford them an opportunity of showing their attachment and esteem for their Alma Mater.

Any former student of the College may become a member of the Association, but may not become an officer until three years after his class has graduated from the College.

A General Meeting is held every year at the College. At this meeting officers for the coming year are elected, and all matters of general business transacted.

The office of the permanent Secretary is located at Loyola College.

University Reserve Training Plan (URTP)

The University Reserve Training Plan is designed to qualify College students for commissions in The Royal Canadian Navy, The Canadian Army and the Royal Canadian Air Force.

Loyola College Contingent C. O. T. C.

The Loyola College Contingent, Canadian Officers' Training Corps, is organized under the authority of Army Headquarters, Ottawa, and for all purposes of discipline and training is under the General Officer Commanding, Quebec Command, represented by a Resident Staff Officer attached to each University. The aim of the newly organized C.O.T.C. is to ensure Canada of its future leaders in Science, business, citizenship and in the event of war.

This new establishment allows for a definite quota which is to be filled by volunteers from the College courses and further approved by the University Selection Board. The selected volunteer is given the rank of Student Provisional 2nd Lieutenant throughout the three years of his training and a choice of any branch of the Army. Also if the student so desires he may join, upon graduation, either the Canadian Army Active Force, Reserve Force, Supplementary Reserve or Retire. Each year of his training period is divided into 1: Theoretical lectures (Military Science, History, Law and Geography) carried on during the academic year, and, 2: a Practical Phase, based upon his chosen branch, carried out during the Summer Vacation at an allotted Military Camp.

Upon the completion of the student's 2nd year training he will be qualified 2nd Lieutenant, Reserve Force and is commissioned as such. At the end of his 3rd year, he will be qualified Lieutenant, Active or Reserve Force. He can qualify in the rank of Captain, Reserve Force by joining a Reserve Force Unit within one year of completing his 3rd year C.O.T.C. and completing two years' satisfactory service.

LOYOLA FLIGHT R.C.A.F.

To qualify for enrolment in the University Squadron a student must be a) between the ages of 17 and 26; b) able to participate in R.C.A.F. Summer Training; c) enrolled in a College course which is a requisite of the branch for which application is made; d) medically fit to R.C.A.F. standards; e) Canadian citizen or British subject resident in Canada with the status of a landed immigrant.

Successful candidates are enrolled in the Primary Reserve in the rank of Flight Cadet.

For Flight Cadets of the Loyola Flight, each year is divided into two training periods: 1) *Winter Training*, which takes place at the College. The winter training syllabus provides for 64 hours of lectures and parades during each academic year. This training is designed to familiarize URTP personnel with the duties and responsibilities of junior officers and to give a general knowledge of the R.C.A.F., its functions, and its role in defence. The syllabus includes lectures in world affairs, geopolitics, air power, civil defence and military history. 2) *Summer Training*, which is carried out

at R.C.A.F. Stations. A maximum of 22 weeks of R.C.A.F. Training and employment terminating on or before September 15th is offered. All successful candidates for the URTP attend officers' school in the first half of the first summer. Those who are enrolled in a branch for which a course is conducted then proceed on formal course training while the remainder receive supervised employment at stations across Canada. Formal courses may be of 1, 2 or 3 summers' duration depending on the branch of training. Each year a number of Flight Cadets are selected to take their third summer of training at an overseas unit.

REGULAR OFFICER TRAINING PLAN (ROTP)

The Armed Forces of Canada subsidize a limited number of undergraduate College students who are willing to accept a military service obligation as a commissioned officer under the provisions of the Regular Officer Training Plan.

College students found acceptable will be enrolled in the service of their choice (Royal Canadian Navy, Canadian Army (Regular) or Royal Canadian Air Force), as an officer cadet on a career basis. Upon achievement of degree status and fulfilment of military training requirements, Officer Cadets are promoted to commissioned rank and required to serve a minimum of three years immediately thereafter in the service which sponsored their training. After such service, an officer may be released at his own request providing a period of national emergency does not exist.

A student may qualify for subsidization under this Plan if he a) is a Canadian citizen or British subject resident in Canada with the status of a landed immigrant; b) has attained his 16th but not his 20th birthday on the 1st of January of the year of enrolment in College; c) is physically fit for enrolment in the branch and service of his choice; d) is single and intends to remain so during his officer cadet training period.

Successful applicants will receive financial assistance as follows: Pay $63.00 per month—Living allowance $65.00 per month—Holiday up to thirty days annually with full pay and allowances. Tuition and other essential College fees provided by Department of National Defence. Text-book and Instrument grant $75.00 per year. Medical and Dental care expenses provided by Department of National Defence. Uniforms and accoutrements provided by the Department of National Defence. Aircrew Trainees receive $75.00 per month flying pay while undergoing summer training.

As an officer cadet, each student will undertake a) continuation of a normal academic workload and maintenance of a satisfactory standing therein; b) Military training, which is divided into two phases, theoretical and practical, taken during the student's first, second and third year as an ROTP Cadet.

i) The Theoretical phase consists of academic military studies presented as lectures, lecture demonstrations and discussions on subjects that will provide a background for the practical phase.

ii) The practical phase is full time duty with the regular forces taken during the summer vacation.

Students interested in either the ROTP or URTP may obtain further information and application instructions from Major F. Ledoux, R.S.O., Loyola College, C.O.T.C., or Reverend H. Smeaton, S.J., Loyola College.

ENTRANCE SCHOLARSHIPS AND BURSARIES

For Junior Matriculation Students

Bryan Memorial Scholarship. One scholarship of the total value $320.00, renewable yearly to the end of four years' tenure. Given each

year in memory of Rev. Wm. X. Bryan, S.J., and open to students of the Catholic High School Commission of Montreal.

Doherty Memorial Scholarship. One scholarship of the total value of $320.00, renewable yearly to the end of four years' tenure. Given each year in memory of Rev. Wm. Doherty, S.J., and open to students of Daniel O'Connell High School.

Jones Memorial Scholarship. One scholarship of the total value of $320.00, renewable yearly to the end of four years' tenure. Given each year in memory of Rev. Arthur Jones, S.J., and open to students of St. Leo's High School.

Loyola Mothers' Guild Bursaries. Two Bursaries of the value of $100.00 each. Awarded by the Loyola Mothers' Guild to two talented and deserving students of Loyola High School who desire to register in first year.

McMahon Memorial Scholarship. One scholarship of the total value of $320.00, renewable yearly to the end of four years' tenure. Given each year in memory of Rev. Thomas McMahon, S.J., and open to students of Loyola High School.

McCarthy Memorial Scholarship. One scholarship of the total value of $320.00, renewable yearly to the end of four years' tenure. Given each year in memory of Rev. Hugh McCarthy, S.J., and open to students of Resurrection and Ville La Salle High Schools.

O'Bryan Memorial Scholarship. One scholarship of the total value of $320.00, renewable yearly to the end of four years' tenure. Given each year in memory of Rev. Gregory O'Bryan, S.J., and open to students of St. Willibrord's High School.

O'Dowd Memorial Bursary. A Bursary of the total value of $400.00, renewable yearly to the end of four years' tenure. Given each year in memory of Nora O'Dowd, to a talented and deserving student.

The Rector's Scholarship. A scholarship of the total value of $320.00, renewable yearly to the end of four years' tenure. Given each year by the Rector to the student who has attained the highest average over the four years at Loyola High School.

St. Ignatius Parish Bursary. A Bursary of the total value of $400.00, renewable yearly to the end of four years' tenure. Given each year by the Parishioners of St. Ignatius Parish, to a talented and deserving son of a member of the Parish who desires to enter the Faculty of Arts.

For Senior Matriculation Students

Bartlett Memorial Scholarship. One scholarship of the total value of $240.00, renewable yearly to the end of three years' tenure. Given each year in memory of Rev. E. Bartlett, S.J., and open to students of D'Arcy McGee High School.

Carling Memorial Scholarship. A scholarship of the total value of $300.00, renewable yearly to the end of three years' tenure. Given by the late Mrs. Ursula Carling. Not tenable with other scholarships or bursaries.

Cloran Memorial Scholarship. One scholarship of the total value of $240.00, renewable yearly to the end of three years' tenure. Given each year in memory of Rev. Raymond Cloran, S.J., and open to students of Cardinal Newman High School.

Gasson Memorial Scholarship. One scholarship of the total value of $240.00, renewable yearly to the end of three years' tenure. Given each year in memory of Rev. Thomas Gasson, S.J., and open to students of Catholic High School.

UNDERGRADUATE SCHOLARSHIPS AND BURSARIES

L. J. A. Amyot Scholarship. A scholarship of the value of $100.00, awarded annually to a student entering fourth year in the Faculty of Arts who has attained the highest marks during the first three years.

Cuddy Memorial Bursary. A Bursary of the value of $100.00, for one year, awarded annually to a talented and deserving student. Given each year in affectionate remembrance of a graduate of the class of 1917, by John P. Cuddy.

Friends of Loyola Bursary. A Bursary of the total value of $320.00, renewable yearly to the end of four years' tenure. Awarded when vacant to a talented and deserving student, in memory of James Corcoran, class of '30, and of deceased members of the staff.

Gutelius Memorial Bursary. A Bursary of the value of $100.00, awarded annually to a talented and deserving student who desires to take up the study of medicine. In memory of Charles David Gutelius.

Halley Memorial Scholarship. A scholarship of the value of $100.00 a year for two years. Given by Mr. and Mrs. P. F. Halley in memory of their son, Arthur Patrick, class of '46, and awarded to pre-medical students in third and fourth years.

Knights of Columbus, Montreal Council No. 284 Bursary. A Bursary of the value of $150.00, awarded annually to a talented and deserving student, preferably to a son of a member of the Montreal Council.

Loyola Alumni Bursary. A Bursary of the value of $100.00. Given each year by the Loyola College Alumni Association and awarded to a talented and deserving student.

Mahoney Memorial Bursary. A Bursary of the total value of $320.00, renewable yearly to the end of four years' tenure. Given by the Business Woman's Sacred Heart Retreat Association, in memory of Mother Ellen Mahoney, and awarded, when vacant, to a Montreal student desirous of studying for the Church.

Murphy Memorial Bursary. A Bursary of the total value of $320.00, renewable yearly to the end of four years' tenure. Given by Mr. and Mrs. George B. Murphy, in memory of their son, of the class of '29, and awarded when vacant to a talented and deserving student from Sherbrooke.

Stanford Memorial Bursary. A Bursary of the total value of $320.00, renewable yearly to the end of four years' tenure. Given by Mrs. J. S. Stanford in memory of the late J. S. Stanford and awarded to a talented and deserving student.

State Council of the Knights of Columbus of the Province of Quebec Bursary. A Bursary of the value of $100.00 for one year's tenure. Awarded to a talented and deserving student determined by the Officers of the Executive of the State Council of the Knights of Columbus of the Province of Quebec.

Dominion-Provincial Loans and Bursaries. The Quebec grants are half bursary and half loan, the latter being repayable one year after leaving the College. The candidate must be a Canadian citizen and have resided in the Province of Quebec for the past five years. These bursaries are open to students of the Science, Engineering and Commerce Faculties.

ACADEMIC AWARDS
Special Awards

Governor-General's Medal for highest over-all average in the four years of Arts Course.

Lieutenant-Governor's Silver Medal to the outstanding Engineering student among the graduates.

Lieutenant-Governor's Bronze Medal for the highest over-all average in the four years of Commerce.

Gold Medal and Cash Prize for the outstanding Philosophy student among the graduates on the recommendation by the Philosophy Professors.

Twenty-five Dollar Cash Prize for the highest ranking honours student among the graduates.

Special Cash Prize for the highest ranking pre-Medical student among the graduates.

Special Cash Prize for the highest four-year average in Theology in each of Arts, Science and Commerce.

The **William Henry Atherton Prize of $15.00** to be awarded to the highest ranking student in History.

The **"Loyola Medal"** donated by the Loyola College C.O.T.C. to the representative Loyola student among the graduates.

Gold Medal presented by Reverend Father Rector to the winner of the Public Speaking Contest.

Prizes

For the highest average in Freshman Arts, Sophomore Arts, Junior Arts, Freshman Science, Sophomore Engineering, Sophomore Honours Science, Junior Engineering, Junior Honours Science, Freshman Commerce, Sophomore Commerce and Junior Commerce.

For the highest ranking students in Freshman Arts Latin, Sophomore Arts Latin, Sophomore Arts English, Freshman Science, Science and Mathematics, Arts subjects in Sophomore Science, Freshman Commerce Accounting, Sophomore Commerce Accounting, Sophomore Commerce Arts subjects and Economics 304 in Junior Commerce.

INCOME AND NEEDS OF THE COLLEGE

The endowment of Loyola College in buildings and educational equipment is something in excess of four million dollars. However, a debt of considerable proportions remains in the forms of mortgages and loans on the buildings and equipment.

In view of the great increase in applications, the physical expansion of Loyola is a pressing need. The Development Plan of Loyola College calls for three new buildings in the immediate future, a Science Building, a Faculty Building, and a Library Building. The present High School Building will have to be replaced by a building on another site on the South Campus.

Though there are twenty-five scholarships and bursaries offered presently, this is inadequate to meet the increasing number of requests from talented students for financial aid in obtaining a college and university education. Both annual and founded scholarships and bursaries are needed for this worthy purpose. The names of the donors, or the names of the persons in whose memory they are given, will compose the titles of these scholarships and bursaries.

Gifts or bequests to Loyola College for religious or educational purposes will permit the donor to enjoy the benefits from the relevant exemptions under our tax laws. For the guidance of those who may desire to make benefactions to the College by testamentary bequest, the following form is suggested:

*I give and bequeath to Loyola College, Montreal,
in the Province of Quebec,.............dollars.*

ACADEMIC REGULATIONS

Attendance

Regular attendance at lectures is required in all subjects. A Freshman student is barred from sitting, at the regular time, for the examination in any subject of which he has missed, without adequate reason, 10% of the lectures.

The sanctions to be applied to students of other years who fail to attend lectures are left to the Dean and the professors concerned to decide.

Discipline

The education system employed by the College includes as one of its most important features the formation of character. For this reason, the discipline, while considerate, is firm, especially when the good of the Student Body or the reputation of the institution is concerned.

While it is the policy of the Faculty to trust as much as possible to the honour of the students themselves in carrying on the government of the College, nevertheless, for the maintaining of order and discipline, without which the desired results are not attainable, regular and punctual attendance, obedience to College regulations, serious application to study and blameless conduct, will be insisted upon. Any serious neglect of these essential points will render the offender liable to moderate punishment, to suspension or even to dismissal, at the discretion of the College authorities.

Reports

Professors report frequently to the Dean on the academic standing of the students and to the Dean of Men on attendance and general conduct.

A detailed report of the students' scholastic standing is sent to the parents or guardians at mid-year and after the final examinations. Special reports on individual students will be furnished at any time upon request.

Each student is entitled on leaving the College to a transcript of his record free of charge. For each additional transcript a fee of One Dollar will be charged. A fee of Fifty Cents per copy is charged for a partial transcript if the student's studies are still in progress. No transcripts will be issued during the periods of commencement, registration and examination.

COURSES OF STUDY OFFERED

The College offers the following four-year courses:

1. Courses leading to the Honours Bachelor of Arts in the following fields: Economics, English, History. Philosophy is a required Discipline with each of these fields of study.

2. Courses leading to the General Bachelor of Arts degree.

3. Courses leading to the General Bachelor of Arts degree with special modifications to meet pre-Medical and pre-Dental requirements.

4. Honours Bachelor of Science courses in Chemistry and Mathematics. The Honours Chemistry course is accredited as fulfilling all the requirements for Professional Membership in the Chemical Institute of Canada.

5. Courses in General Science with continuation subjects in Physics, Chemistry, Biology and Chemistry, or Mathematics.

6. Courses leading to the General Bachelor of Science degree with special modifications to meet pre-Medical requirements.

7. Courses leading to the degree of B.Sc. with a certificate in Engineering. (Holders of this Certificate are eligible to enter the second last year of their chosen branch of Engineering at McGill University.)

Those students who cannot complete the course for the B.Sc. Degree at Loyola with the certificate in Engineering may follow an abbreviated course which prepares them to transfer at the end of Third Year.

8. Courses leading to the Bachelor of Commerce degree with majors either in Accounting or Economics.

Students holding the Bachelor of Commerce degree with a major in Accounting from Loyola College are usually exempted from the Intermediate examinations of the Institute of Chartered Accountants of Quebec. They are also usually exempted from three of the five years of apprenticeship required for the C.A. certificate. Further information may be obtained from the Registrar.

ENTRANCE REQUIREMENTS FOR FIRST YEAR

An application for admission to the First Year in any Faculty will be considered if the applicant has obtained, with the subjects and grade required by the Faculty in which he wishes to study, the Loyola High School Diploma (College Preparatory), the Quebec Junior Catholic High School Leaving Certificate (College Preparatory), the Quebec Junior High School Leaving Certificate or the McGill Junior School Certificate (College Preparatory). The subjects and grades required by each Faculty are as follows:

ARTS: The matriculation transcript must include English, French, Latin, elementary Algebra and Geometry. The marks in Latin and English should be above average.

SCIENCE and ENGINEERING: The matriculation transcript must include English, French, elementary Algebra, Geometry and one out of Physics, Chemistry and Trigonometry. The marks in Science and Mathematics should be above average.

COMMERCE: The matriculation transcript must include English, French, elementary Algebra and Geometry.

Any of the following certificates is considered equivalent to the four named above and will be accepted if it contains the required subjects and grades as outlined above for the Faculty to which application is made; Ontario Secondary School Graduation Diploma; Manitoba Grade XI certificate; Saskatchewan Grade XI certificate; Alberta Grade XI certificate; British Columbia Junior Matriculation certificate; New Brunswick Junior Matriculation certificate; Nova Scotia Grade XI certificate; Prince of Wales College, Prince Edward Island Second Year certificate; Newfoundland Grade XI certificate; Great Britain, General Certificate of Education, passes at the ordinary level in five subjects (with appropriate subjects according to faculty chosen).

When there is doubt about the adequacy of an applicant's previous studies he will be required to pass some or all of the entrance examinations held at Loyola College during the first week in September. The matter of these examinations is equivalent to that presented for the Junior School Certificate of the province of Quebec. The fee for each paper is five dollars.

A candidate cannot be admitted to First Year without a sufficient command of English to enable him to write it fluently and take dictation easily. If there is some doubt about this a special examination can be had.

ENTRANCE REQUIREMENTS FOR SECOND YEAR

An application for admission to the Second Year in any Faculty will be considered if the applicant has obtained, with the subjects and grades required by the Faculty in which he wishes to study, the Quebec Senior Catholic High School Leaving Certificate, the Quebec Senior High School Leaving Certificate or the McGill Senior School Certificate. The requirements special to the different Faculties are as follows:

GENERAL ARTS: A total of ten papers including English, French and Latin. The marks in English and Latin should be above average.

ARTS Pre-Medical: A total of ten papers including English, French, Latin, Trigonometry and Intermediate Algebra. The marks in English and Latin should be above average.

ENGINEERING: A total of ten papers including English, French, Physics, Chemistry, Senior Algebra, Analytic Geometry and Trigonometry if not already a constituent subject of Junior Certificate. In Science and Mathematics' subjects, the marks should give evidence of ability for Engineering.

HONOURS CHEMISTRY, MATHEMATICS and PHYSICS: The same requirements as for Engineering except that an average of 70% is required in Science and Mathematics subjects and evidence of high ability in the major subject chosen.

GENERAL SCIENCE: A total of ten subjects including English, French, Physics, Chemistry, Trigonometry, Senior Algebra and Analytic Geometry.

Any of the following certificates is considered equivalent to the four named above and will be accepted if it contains the required subjects and grades as outlined above for the different Faculties: Ontario Grade XIII certificate; Grade XII certificate of Manitoba, Saskatchewan and Alberta; British Columbia Senior Matriculation certificate; Nova Scotia Grade XII certificate; Prince Edward Island Third Year certificate of Prince of Wales College; Great Britain, General Certificate of Education with passes in five subjects, including two appropriate subjects at Advanced Level.

Application should be made early. The required forms obtainable from the Registrar's Office, are to be filled out and returned along with an official transcript of marks, a testimonial of good character and a vaccination certificate. If any of these documents are not immediately available, they should be forwarded as soon as possible. Once the candidate is accepted these credentials become the property of the College and are kept permanently on file.

Upon notification of successful application, the candidate shall forward to the College the registration fee of Five Dollars ($5.00). Prospective resident students shall also forward the room deposit of Fifty Dollars ($50.00). No reservation will be made for the candidate until these conditions are met. The room deposit of $50.00 will be returned if application for residence is cancelled before September 1st.

Registration

All students are required to register on the dates assigned in the Academic Calendar. A fee of Five Dollars ($5.00) is charged as a penalty for late registration.

Admission of Special Students

Students not proceeding to a degree may enter any one of the four years for which they are prepared.

Prospective students under this section should correspond with the Dean in regard to the arrangement of their courses.

EXAMINATIONS and PROMOTIONS
General Regulations

To pass his year a student must obtain the over-all average required in his Faculty and pass each subject as well. The pass marks are given below for the different Faculties.

A student may be promoted if he has obtained the required over-all average and failed in not more than one subject. The subject failed, however, may not be one prerequisite for the work of his succeeding year. A supplemental examination in the subject must be passed before the student will be promoted again to another year.

Students in Senior Year who have failed a subject in Junior must pass the supplemental in that subject before the beginning of the second term

REGULATIONS SPECIAL TO EACH FACULTY

Arts

In the Faculty of Arts, final examinations are held on the completion of each course: In January, for half-courses (i.e., courses covering the first term); and in May, for full courses and for half-courses covering the second term.

For promotion, a student must obtain an over-all average of 50%; this average is computed on the total marks obtainable at the end of the scholastic year in May. In addition, he must not have a mark lower than 50% in any subject. A student with an over-all average of 50%, but under 50% in any subjects, must write supplemental examinations in these subjects in September in order to be considered eligible for promotion.

Honours students must maintain an overall average of 65%.

The conditions for entering Honours courses in Second year are as follows:

(a) No student shall be allowed to take Honours in a subject in which he has failed to obtain at least Second Class Honours in his First year.

(b) Permission must be obtained from the Dean and the Department in which the student wishes to take Honours.

(c) Students who fail to obtain 65% in Second or Third year must transfer to the General Course the following year or years.

Science and Engineering

Final examinations in all subjects are held in May and cover the work of the entire year. If, however, a subject is completed at mid-year the examination in that subject will be held in January.

Tests in each subject are held two or three times during the year. The marks assigned to these tests will be announced by the Professor.

To pass his year the student must have an overall average of 50% and 50% in each subject.

Honours students must have an overall average of 65% and at least 50% in each subject to maintain honours standing. If they have made below 50% in a subject they may be allowed to write a supplemental examination in that subject to regain honours standing.

Commerce Course

Final examinations in all subjects are held in May and cover the work of the entire year.

Tests in each subject are given two or three times during the year. The value assigned to these tests will be announced by the Professor.

A student passes his year if he has an overall average of 60% and not below 50% in any subject.

SUPPLEMENTAL EXAMINATIONS

Supplemental examinations are held before the opening of classes in September.

The closing date for applications for supplemental examinations and the examination date are given on page 4.

A Senior student carrying a failure from his Junior year will be given an opportunity of writing a supplemental examination in that subject before the beginning of his second term.

The fee for each supplemental examination written at the regular above-mentioned times is Five Dollars ($5.00). Should permission be granted a student to write at any other time the fee is Ten Dollars ($10.00) for each examination.

DEGREES

Requirements for the Bachelor's Degree

Bachelor of Arts (Honours)

In each of the Second, Third and Fourth years the student must maintain 65%.

Bachelor of Arts (General)

In each of the four years the student must have an overall average of 50% and 50% in each subject.

Bachelor of Science (Honours)

In each of the four years the student must have an overall average of 65% and 50% in each subject.

Bachelor of Science (General)

In each of the four years the student must have an overall average of 50% and 50% in each subject.

Bachelor of Commerce

In each of the four years the student must have an overall average of 60% and 50% in each subject.

ACADEMIC HONOURS

For second class standing in the year's work an overall average of 65% is required.

For first class standing in the year's work an overall average of 80% is required.

The Bachelor's Degree is granted:

Cum laude—to those with a four-year average between 70% and 80%.

Magna cum laude—to those with a four-year average between 80% and 90%.

Summa cum laude—to those with a four-year average of 90% or over.

OUTLINE OF COURSES

BACHELOR OF ARTS (GENERAL) COURSE

Year	Subject	Year	Subject
First	English 105 and 106, French 101, Latin 101, Theology 101, Mathematics 101. *One Elective.	**Second**	English 203, French 202, Latin 202, Philosophy 202, Theology 202, One Elective.
Third	History (one course), Philosophy 303, Philosophy 405, Theology 303, One Science Elective, One more Elective.	**Fourth**	Philosophy 404, Philosophy 405, Sociology 101, Theology 404, Two Electives.

BACHELOR OF ARTS (PRE-MEDICAL) COURSE

Year	Subject	Year	Subject
First	English 105 and 106, French 101, Latin 101, Mathematics 101, Theology 101. *One Elective.	**Second**	Biology 202, English 302, French 202, Latin 202, Philosophy 202, Theology 202.
Third	Biology 304, Biology 305, Chemistry 101, Philosophy 303, Physics 101, Theology 303.	**Fourth**	Biology 406, Biology 408, Chemistry 203 and 204, Chemistry 205, Chemistry 214, Philosophy 404, Theology 404.

*One course from Economics 202, Greek 101, History 101.

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HONOURS CHEMISTRY COURSE

Year	Subject	Year	Subject
First	Algebra (Maths. 103), Analytic Geometry (Maths. 102b), Chemistry 101, English 101, 102, French 103 or 105, Physics 101, Public Speaking, Theology 101, Trigonometry (Maths. 102a).	**Second**	Analytical Geometry (Maths. 206), Calculus (Maths. 205), Chemistry 203, Chemistry 204, Chemistry 205, Chemistry 207, Chemistry 310, Philosophy 201, French 204 or 206, Theology 202.
Third	Chemistry 308, Chemistry 309, Chemistry 312, Chemistry 313, Mathematics 309, English 207, Philosophy 313, Physics 303, Theology 303.	**Fourth**	Chemistry 311, Chemistry 315, Chemistry 416, Chemistry 417, Chemistry 418, Chemistry 419, Chemistry 422, Mechanics 405, Philosophy 404, Theology 404.

HONOURS MATHEMATICS COURSE

Year	Subject	Year	Subject
First	Algebra (Maths. 103), Analytic Geometry (Maths. 102b), Chemistry 101, English 101, 102, French 103 or 105, Physics 101, Public Speaking, Theology 101, Trigonometry (Maths. 102a).	**Second**	Algebra (Maths. 208), Analytic Geometry (Maths. 206), Analytic Geometry (Maths. 207), Calculus (Maths. 205), Chemistry 207, Philosophy 201, French 204 or 206, Theology 202.
Third	Algebra and Calculus (Maths. 308), Mathematics 311, Differential Equations (Maths. 309), English 207, History 418, Mechanics 303, Philosophy 313, Physics 303, Theology 303.	**Fourth**	History 419, Mechanics 404, Mathematics 412, Number Theory (Maths. 416), Philosophy 404, Theology 404.

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GENERAL SCIENCE CHEMISTRY

First Year is the same as in Honours Chemistry.

Year   Subject

Second Chemistry 203,
Chemistry 204,
Chemistry 205,
Philosophy 201,
French 204 or 206,
Mathematics 206,
Theology 202.

Third Chemistry 309
or
Chemistry 422,
Chemistry 310,
Chemistry 313,
English 207,
Philosophy 313,
Theology 303.

Fourth Chemistry 207,
Chemistry 309
or
Chemistry 422,
Chemistry 419,
Mathematics 205,
Philosophy 404,
Theology 404.

GENERAL SCIENCE CHEMISTRY AND BIOLOGY

Science Pre-Medical Course

Year   Subject

First The same as in Honours Chemistry.

Second Biology 202,
Chemistry 203,
Chemistry 204,
Chemistry 205,
Philosophy 201,
French 204 or 206,
Mathematics 206,
Theology 202.

Third Biology 304, 305,
Chemistry 313 and 422
or
Chemistry 421,
English 207,
Philosophy 313,
Theology 303.

Fourth Biology 406,
Biology 408,
Chemistry 313 and 422
or
Chemistry 421,
Philosophy 404,
Theology 404.

GENERAL SCIENCE PHYSICS

Year   Subject

First   The same as in Honours Chemistry.

Second	Chemistry 207,	**Third**	Mathematics 307 and 308,
	Philosophy 201,		Mechanics 101,
	French 204 or 206,		English 207,
	Mathematics 205,		Philosophy 313,
	Mathematics 206,		Physics 303,
	Physics 202,		Theology 303.
	Theology 202.		

Fourth Mathematics 309,
Mechanics 202,
Philosophy 404,
Physics 408,
Theology 404.

ENGINEERING

The first year is common in all branches, and in both the Certificate and B.Sc. courses.

First Year
Algebra (Maths. 103),
Anal. Geom. (Maths. 102b),
Chemistry 101,
Engineering Prob. 101,
English 101 and 102,
French 103 or 105,
Mech. Drawing 101,
Physics 101,
Public Speaking,
Theology 101,
Trigonometry (Maths. 102a).

Second Year

B.Sc. Course	**Certificate Course**
Common to all branches	Chemistry 207,
Chemistry 207	Descriptive Geom. 101,
Descriptive Geometry 101	Engineering Problems 202,
Mechanical Drawing 201	Mathematics 205,
Mathematics 205	Mathematics 206,
Mathematics 206	Mathematics 307,
French 204 or 206	Mechanics 101,
Philosophy 212	Mechanical Drawing 201
Physics 202	Philosophy 201,
Theology 202	Physics 202,
	Surveying 101,
	*Surveying Field Work,
	Theolology 202.

*A four-week course for all except Chemical Engineers at the close of Second Year.

Chemical

Certificate Course	**B.Sc. Course**
Third Year	**Third Year**
Chemistry 203,	Chemistry 203
Chemistry 204,	Chemistry 204
Chemistry 205,	Engineering Problems 202
Engineering Problems 303,	Mathematics 307
Engineering Reports,	Mechanics 101
History of Science 418,	Philosophy 313
Materials of Engin. 101,	Physics 303
Mathematics 308,	Surveying 101
Mechanics 202,	Theology 303
Physics 303,	
Summer Essay,	**Fourth Year**
Theology 303.	Chemistry 205
	Chemistry 310
	Engineering Problems 303
	English 207
	Mathematics 308
	Mechanics 202
	Materials of Engineering 101
	Philosophy 414
	Theology 404
	Summer Essay

CIVIL, ELECTRICAL AND MECHANICAL

Certificate Course
Third Year
Engineering Reports,
Geology 101,
History of Science 418,
Mathematics 308,
*Mathematics 309
Materials of Engineering 101,
Mechanics 202,
Mechanics of Machines 101,
Mechanical Drawing 202,
Physics 303,
*Physics 409,
Summer Essay,
**Summer School,
Surveying 203,
Surveying Problems 310,
Theology 303.

B.Sc. Course
Third Year
Engineering Problems 202
Geology 101
Mathematics 307
Mechanics 101
Philosophy 313
Physics 303
Surveying 101
Theology 303
Surveying Summer School

Fourth Year
English 207
†Engineering Problems 303
‡Engineering Geology
Materials of Engineering 101
Mathematics 308
*Mathematics 309
Mechanics 202
Mechanics of Mach. 101
Mechanical Drawing 202
Philosophy 414
*Physics 409
Surveying 203
Surveying 310
Theology 404
**Surveying Summer School
Summer Essay

†For Mechanical Engineering only.
‡For Civil Engineering only.
*For Electrical Engineering only.
** For the Civil Engineers a four-week course in Surveying at close of year's work. For Mechanical Engineers a four-week course in machine-shop work in September following the close of the year's work.

ENGINEERING PHYSICS

Certificate Course
Third Year
Engineering Reports,
Mat'ls. of Engineering 101,
Mathematics 309,
Mathematics 311,
Mechanics 202,
Physics 303,
Physics 305,
Physics 409,
Summer Essay,
Theology 303,
Vector Methods.

B.Sc. Course
Third Year
Engineering Problems 202
Mathematics 307
Mathematics 309
Mechanics 101
Philosophy 313
Physics 303
Surveying 101
*Surveying Summer School
Theology 303

Fourth Year
English 207
Materials of Engineering 101
Mathematics 311
Mechanics 202
Mechanics 303
Philosophy 414
Physics 305
Physics 409
Theology 404

*Four week course at the end of three years.

ENGINEERING COURSES
Mining

Certificate Course
Third Year
Chemistry 203,
Chemistry 204,
Engineering Reports,
Geology 101,
History of Science 418,
Mat'ls. of Engineering 101,
Mathematics 308,
Mechanics 202,
Mineralogy 202 and 203,
Mining, Hist. of,
Physics 303,
Summer Essay,
*Summer School,
Surveying 203,
Theology 303.
* A four-week course at close of Third Year.

B.Sc. Course
Third Year
Chemistry 203
Chemistry 204
Engineering Problems 202
Geology 101
Mathematics 307
Mechanics 101
Philosophy 313
Physics 303
Surveying 101
**Surveying Summer School
Theology 303

Fourth Year
English 207
Materials of Engineering 101
Mathematics 308
Mechanics 202
Mineralogy 101
Mineralogy 202
Philosophy 414
+Summer School
Surveying 203
Surveying 310
Theology 404
Summer Essay

**Four weeks at the end of third year.
+Four weeks at the end of fourth year.

OUTLINE OF BACHELOR OF COMMERCE COURSES

First Year	Second Year
Accounting 101,	Accounting 202,
Economics 202,	Commercial Law 101,
English 101, 102,	Economics 304,
French 101 or 105,	French 204 or 206,
Mathematics 101,	Mathematics 202,
Theology 101.	Mathematics 203,
	Philosophy 212,
	Theology 202.

Third Year	Third Year
Accounting Major	*Economics Major*
Economics 405	Economics 405
Accounting 303,	English 207,
Accounting 304,	Philosophy 321,
Auditing 305,	Theology 303.
Philosophy 321,	Two Economic Electives.
English 207,	
Theology 303.	

Fourth Year	Fourth Year
Accounting Major	*Economics Major*
Accounting 405,	Business Management 101,
Auditing 406,	Finance 101,
Business Management 101,	Sociology 101,
Finance 101,	Philosophy 404,
Philosophy 404,	Theology 404.
Theology 404.	Two Economic Electives.
One Economic Elective.	

DETAILS OF COURSES OF INSTRUCTION

The Faculty reserves the right to refuse to offer a course listed below for which there is not a sufficient number of applicants.

ACCOUNTING

Accounting 101..Full course.

Introduction to Books of Account and Financial Statements: theory of debit and credit; principles of double entry; books of original entry; recording of transactions through the general, sales, and purchase journals; special forms of cash book; controlling accounts; general ledger; accounts receivable and accounts payable ledgers; discounts, interest, prepaid and accrued charges; notes and bills of exchange; cheques, invoices, statements of account, bills of lading and other commercial papers; imprest system of petty cash; depreciation; provision for bad debts and discounts; inward and outward consignments; capital and revenue expenditures; bank reconciliations; voucher register; single entry; preparation of Trading and Profit and Loss Statements and Balance Sheets, single proprietorship; introduction to Work Sheet.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Finney and Miller, *Principles of Accounting*—Introductory (Prentice-Hall). (Can. Ed.)

REFERENCE BOOKS: Smails, *Accounting Principles* (Ryerson).
Tunick and Saxe, *Fundamental Accounting* (Prentice-Hall).

Accounting 202..Full course.
Operating Statements and Balance Sheets with enlargement of Work Sheet Practice introduced in First Year.

Partnerships: formation, the partnership agreement; classes of partners and of partnerships; rights, duties, and powers of partners; distribution of profits; admission and withdrawal of partners; partnership dissolution; sale of a partnership to a Corporation; default of a partner, goodwill.

Corporations—Legal Aspects: formation and control; shareholders, directors; meetings; public and private companies; capital stock; limited liability; statutory books; auditors; dissolution. Accounting for Corporation taking over sole proprietor or partnership. Exchange of shares in Corporation for Assets in business selling out.

Manufacturing Accounts and Statements: factory departments; elements of cost; materials and supplies; work in process and finished goods accounts; periodic and perpetual inventories.

Departmental Accounts: distribution of charges to departments; comparison of department operations.

Depreciation: Causes of and accounting for depreciation.

Reserves and reserve funds.

Analysis and Interpretation of Financial Statements: Principles of valuation of current and fixed assets and liabilities; comparative balance sheets, ratios re working capital, share valuation, etc.

Single Entry and conversion to double entry.

Bonds and Debentures: Security payment of interest and principal; trust deed; issue and redemption; accounting for bond issue, interest and amortization.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOKS: Smails, *Accounting Principles* (Ryerson).
Finney and Miller, *Principles of Accounting*—Intermediate (Prentice-Hall). (Can. Ed.)

Accounting 303....................................Full course.

Analysis of Balance Sheet: Analysis and interpretation of financial statements; source and application of funds; equity of shares; sundry analyses; comparative ratios.

Branch Accounts: Merchandise charged at cost, intermediate or selling prices; foreign branches; conversion of accounts in foreign currency.

Investigations: Nature and classes of business investigations; methods of approach to an investigation; investigations not involving fraud or loss—prospectus certificate, proposed merger, prospective investor or purchaser, reorganization of capital structure. Investigation involving loss-fraud, fire loss, burglary costs, etc.

Dominion and Provincial Companies' Act: relative to preparation of financial statements and accounting procedures.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOKS: Finney and Miller, *Principles of Accounting*—Intermediate (Prentice-Hall). (Can. Ed.)
Dominion and Province of Quebec Companies' Act.

REFERENCE BOOKS: Finney and Miller: *Principles of Accounting*—Advanced (Prentice-Hall).
Karrenbrock and Simons: *Advanced Accounting* (South-western Publishing Company).
Smails: *Auditing* (Ryerson).
Smails: *Accounting Principles* (Ryerson).

Accounting 304....................................Half course.

Holding Companies: Consolidated statements; inter-company transactions and accounts—stock and bond holdings; investment accounts; minority interest.

Reorganizations, Mergers and Amalgamations: Rights and privileges of creditors and shareholders, plan of reconstruction.

LECTURES: *One hour a week for two terms.*

TEXT-BOOKS: Karrenbrock and Simons: *Advanced Accounting* (South-western Publishing Co.).
Smails: *Accounting Principles* (Ryerson).

REFERENCE BOOKS: Paton: *Advanced Accounting* (MacMillan).
Ferguson and Crocombe: *Holding Companies and Their Accounts.*

Auditing 305....................................Full course.

Classification and scope; internal check; rights, duties and responsibility of auditors; fraud and error in accounts; legal regulations—Dominion and Provincial; audit procedure and programmes; audit certificate and reports; audit working papers.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOKS: Stettler: *Auditing Principles* (Prentice-Hall).
Smails: *Auditing* (Ryerson).
Dominion and Province of Quebec Companies' Act.

Accounting 405....................................Full course.

Cost Accounting: Terms and cost formulae; elements of cost; cost records, cost reports, estimating cost systems; standard costs; job costs; variances, cost ratios.

Budgetary Control: Preparation and control of the budget, variable expense budgets.

Executorships: Charge and discharge statements; capital and income; division of an estate; succession duties.

Bankruptcy and Liquidation Accounts: Receivers' accounts; priority of creditors; statement of affairs; deficiency account; realization and liquidation statement.

Income Tax: Individuals; proprietors; partners corporations; general considerations.

LECTURES: *Four hours a week for two terms.*

TEXT-BOOKS: Matz, Curry and Frank: *Cost Accounting* (Gage).
Karrenbrock and Simons: *Advanced Accounting* (South-western Publishing Company).
Gilmour: *Income Tax Handbook 1958-59.*

REFERENCE BOOKS: C. L. Van Sickle: *Cost Accounting* (Harper).
R. B. Kester: *Advanced Accounting.*
Anger: *Digest of Mercantile Law* (Cartwright & Sons).
Sherwood & Chase: *Principles of Cost Accounting.*

Auditing 406....................................Half course.

A continuation of Auditing 305 with emphasis on Auditing problems, including report writing.

LECTURES: *One hour a week for two terms.*

BIOLOGY

Biology 101. Fundamental Biology....................Full course.

A series of lectures and demonstrations designed to acquaint the general student with those fundamental principles of life which are the basis for an understanding of the structure and function of the living body.

LECTURES: *Two hours a week for two terms.*

REFERENCE BOOKS: Best & Taylor: *The Human Body and its Functions* (Holt).
Kahn: *Man in Structure and Function* (Knopf).
Rogers, Hubbell, Byers: *Man and the Biological World* (McGraw-Hill).
Hardin, Biology: *Its Human Implications* (Freeman).
Scheinfeld: *The New You and Heredity* (Lippincott).

Biology 202. Invertebrate Zoology....................Full course.

a) **Theory.** The course begins with a study of scientific methodology and its application to the living sciences. The nature and characteristics of protoplasm are explained and these are correlated with a discussion of the cell as the unit of structure and function. These basic principles are then utilized in a detailed study of the phyla of the invertebrate animals.

LECTURES: *One hour per week for two terms.*

TEXT-BOOK: Storer & Usinger: General Zoology (McGraw-Hill).

b) Laboratory. A detailed study of representative animals of the invertebrate phyla. The first part offers intensive exercises in the use of the microscope and the interpretation of microscopic sections. The second half affords training in manual dexterity necessary for precise dissection.

LABORATORY: *Three hours per week for two terms.*

TEXT-BOOK: Storer & Usinger: *General Zoology* (McGraw-Hill).

Biology 304. Vertebrate Zoology (Theory)...............Half course.

The course opens with a study of the characteristics and classification of the vertebrates. The basic structure of the vertebrate body is outlined. Following this, the important type vertebrates are studied in detail, particular stress being laid on embryological development, structure and function.

LECTURES: *Two hours per week for two terms.*

TEXT-BOOK: Storer & Usinger: *General Zoology* (McGraw-Hill).

REFERENCE BOOKS: Arey: *Developmental Anatomy* (Saunders).
　　　　　　　　Best & Taylor: *The Human Body and its Functions* (Holt).

PREREQUISITE: Biology 202a.

Biology 305. Vertebrate Zoology (Laboratory)............Half course.

The course comprises a detailed study of the structure of amphioxus, dogfish, frog and rabbit. The course is so conducted that, by training in exact dissection, observation and the preparation of carefully executed drawings, the student may be able to trace the main features of organization from the lower to the higher vertebrates.

LABORATORY: *Six hours per week for two terms.*

TEXT-BOOKS: Storer & Usinger: *General Zoology* (McGraw-Hill).
　　　　　　　Craigie-Bensley's: *Practical Anatomy of the Rabbit* (Univ. of Toronto Press).

PREREQUISITE: Biology 202b.

Biology 406. Histology...............................Half course.

a) Theory. An introductory study of the cell, cell division and the general tissues. The course is designed to explain in detail the structure and function of epithelial, connective, contractile and nervous tissues and to introduce the various combinations of these in the special tissues of the adult body.

LECTURES: *Two hours per week for one term.*

REFERENCE BOOKS: Stiles: *Handbook of Histology* (McGraw-Hill).
　　　　　　　　Ham: *Histology* (Lippincott).
　　　　　　　　Maximow & Bloom: *Textbook of Histology* (Saunders).

b) Laboratory. A series of exercises designed to introduce the student to the fundamentals of cytological and histological technique, and to illustrate, by means of prepared slides, mitosis, meiosis, as well as the microscopic characteristics of the basic types of histological tissues.

LABORATORY: *Three hours per week for one term.*

Biology 408. Genetics................................Half course.

A series of lectures and demonstrations designed to explain the principles of heredity and variations.

LECTURES: *Two hours per week for one term.*

REFERENCE BOOKS: Sinnott, Dunn, Dobzhansky: *Principles of Genetics* (McGraw-Hill).
　　　　　　　　Dodson: *Genetics* (Saunders).
　　　　　　　　Scheinfeld: *The New You and Heredity* (Lippincott).

BUSINESS

Business Management 101............................Half course.

The principles and techniques underlying the successful organization, management and operation of business activities; the application of these principles to specific business activities and to the management of individual departments.

LECTURES: *Three hours per week for one term.*

CHEMISTRY

Chemistry 101. *General Chemistry (full course).* Theory—A foundation in the principles of Chemistry with emphasis on the kinetic and atomic theories, the structural basis of matter, the Periodic Table and elementary solution theory. The principles are applied in describing the more common inorganic substances and reactions. Extensive practice is given in chemical nomenclature, equation writing, and numerical problems. Laboratory—A study of the preparation and reactions of representative elements and inorganic compounds.

LECTURES: *Four hours a week for two terms.*

LABORATORY: *Three hours a week for two terms.*

TEXT-BOOK: Schaum: *Theory and Problems for Students of College Chemistry, Third Edition.*
　　　　　　King: *Semi-micro Experiments in General Chemistry* (Prentice-Hall).

REFERENCE BOOKS: Pauling: *College Chemistry* (Freeman).
　　　　　　　　Frey: *College Chemistry* (Prentice-Hall).

Chemistry 203. *Semi-Micro Inorganic Qualitative Analysis (full course).* Theory — Nature of solutions, electrolytes, law chemical equilibrium, ionization constants, solubility products, common ion effect, formation and dissolution of precipitates, equilibrium law applied to hydrolysis, amphoterism, complex ions and complex compounds. Laboratory—The methods and technique of semi-microanalysis are applied to the ordinary scheme for the separation and identification of the common ions.

LECTURES: *Two hours per week for one term.*

LABORATORY: *Six hours per week for one term.*

TEXT-BOOK: Sorum: *Introduction to Semimicro Qualitative Chemical Analysis* (Prentice-Hall).

PREREQUISITE: *Chemistry 101.*

Chemistry 204. *Quantitative Inorganic Analysis (Elementary) (full course).* Theory—Theoretical aspects of precipitation in gravimetric and volumetric analysis, theory of indicators, acid-base titration, oxidation—reduction methods of analysis. Laboratory—simple gravimetric determinations, methods of volumetric analysis, precipitation, oxidation-reduction and neutralization.

LECTURES: *Two hours per week for one term.*

LABORATORY: *Nine hours per week for one term.*

TEXT-BOOK: Willard and Furman: *Elementary Quantitative Analysis* (Van Nostrand).

REFERENCE BOOK: Kolthoff, Sandell: *Text-book of Quantitative Inorganic Analysis* (MacMillan).

PREREQUISITE: *Chemistry 101.*

Chemistry 205. *Organic Chemistry (Elementary) (full course).* Nomenclature, synthesis and type reactions of aliphatic, alicyclic and aromatic hydrocarbons and their principal derivatives. Elementary applications of electron theory to organic chemistry.

LECTURES: *Three hours per week for two terms.*

LABORATORY: *Three hours per week for two terms.*

TEXT-BOOKS: English and Cassidy: *Principles of Organic Chemistry* (McGraw-Hill).
Cason & Rapoport: *Laboratory Text in Organic Chemistry* (Prentice-Hall).

REFERENCE BOOKS: Noller: *Text-book of Organic Chemistry* (Saunders).
Brewster: *Organic Chemistry* (Prentice-Hall).

Chemistry 207. *Physical Chemistry (Elementary) (full course).* Introductory course in the principles of Physical Chemistry, and includes the following topics: states of matter, equilibria, electrochemical phenomena, chemical kinetics, thermodynamics. Problems form an integral part of the course.

LECTURES: *Three hours per week for two terms.*

REFERENCE BOOK: Daniels & Alberty: *Physical Chemistry* (Wiley).

Chemistry 214 (*half course*). A study of the properties of gases, liquids and solutions; chemical equilibrium; methods for the determination of hydrogen—ion concentration; colloidal state; optical activity; carbohydrates, lipids and proteins. Available to Arts pre-Medical and Pre-Dental students.

LECTURES: *One hour a week for two terms.*

REFERENCE BOOKS: Amsden: *Physical Chemistry for pre-Medical Students, 1950* (McGraw-Hill).
Anderson: *Essentials of Physiological Chemistry, 1953* (Wiley).

Chemistry 308. *Inorganic Chemistry (half-course).* A systematic study of the Periodic Table.

LECTURES: *One hour per week for two terms.*

REFERENCE BOOKS: Latimer-Hildebrand: *Reference Book of Inorganic Chemistry* (MacMillan).
Hildebrand and Powell: *Principles of Chemistry, 6th Edition* (MacMillan).
Sidgewick: *Chemical Elements and Their Compounds* (Oxford).

Chemistry 309. *Organic Chemistry (Adv. 1) (full course).*

Critical review of aliphatic and aromatic chemistry stressing reaction conditions, mechanism, etc. Applications of electron theory to organic chemistry. Proof of structure by physical and chemical means. Intensive drill in problems of synthesis.

LECTURES: *Two hours per week for two terms.*

TEXT-BOOK: Royals: *Advanced Organic Chemistry* (Prentice-Hall).

REFERENCE BOOKS: Gilman: *Organic Chemistry* (Wiley).
Remick: *Electronic Interpretation of Organic Chemistry* (Wiley).
Watson: *Modern Theories of Organic Chemistry* (Oxford).
Wheland: *Resonance in Organic Chemistry.*

Chemistry 310 (*full course*). A study of the theoretical principles underlying analytical methods. Gravimetric and volumetric methods as applied to the determination of the main constituents in ores and alloys, electrodeposition, potentiometry absorption of radiation, gas analysis, ion exchange separations.

LECTURES: *One hour per week for one term.*

LABORATORY: *Twelve hours per week for one term.*

TEXT-BOOK: Kolthoff and Sandell: *Text-book of Quantitative Inorganic Analysis.*

REFERENCE BOOKS: Kolthoff and Laitinen: *pH and Electro Titration* (Wiley).
Ewing: *Instrumental Methods of Chemical Analysis* (McGraw-Hill).
Sandell: *Colorimetric Determination of Traces of Metals* (Interscience).

PREREQUISITE: *Chemistry 204.*

Chemistry 311. *Kinetic Theory (half course).* Kinetic theory of gases; fundamental mathematical relation for velocity, collision frequency, viscosity, thermal conductivity, diffusion; imperfect gases.

LECTURES: *One hour per week for two terms.*

REFERENCE BOOK: Loeb: *Kinetic Theory of Gases* (McGraw-Hill).

PREREQUISITE: *Chemistry 207.*

Chemistry 312. *Thermodynamics (full course).* First and second laws, entropy, free energy, fugacity and activity, partial molal quantities, Debye-Huckel theory.

LECTURES: *Two hours per week for two terms.*

REFERENCE BOOKS: Steiner: *Introduction to Chemical Thermodynamics* (McGraw-Hill).
Lewis-Randall: *Thermodynamics.*

PREREQUISITE: *Chemistry 207, Mathematics 205.*

Chemistry 313. *Identification of Organic Compounds (full course).* Solubility, methods of determining the physical and chemical properties, and classification of organic compounds; preparation of derivatives; identification of several unknown; separation and identification of a mixture of organic compounds.

LECTURES: *One hour per week for two terms.*

LABORATORY: *Three hours per week for the first semester. Six hours per week for the second semester.*

TEXT-BOOK: McElwain: *The Characterization of Organic Compounds, 1953 Edition* (MacMillan).

Chemistry 315. *Physical Chemistry (Advanced) (half course).*
A study of the Phase Rule.

REFERENCE BOOKS: Findlay: *Phase Rule* (Dover).
Glasstone: *Text-book of Physical Chemistry* (Van Nostrand).

LECTURES: *One hour per week for first term.*

Chemistry 416. *Surface and Colloid Chemistry (half course).* A study of the Physical Chemistry of surfaces and the properties of sols, gels, and emulsions.

LECTURES: *One hour per week for two terms.*

REFERENCE BOOKS: Hartman: *Colloid Chemistry* (Houghton Mifflin).
Weiser: *Colloid Chemistry* (Wiley).
Adams: *Physics, Chemistry of Surfaces* (Oxford).

Chemistry 417. *Atomic Structure and Valence Theories (half course).*

LECTURES: *One hour per week for two terms.*

REFERENCE BOOKS: Pauling: *Nature of the Chemical Bond.*
Palmer: *Valency* (Cambridge).
Brown: *Modern Valency Theory* (Longmans).

Chemistry 418. *Physical and Colloid Chemistry Laboratory (full course).* Advanced Physics—chemical methods.

LABORATORY: *Six hours per week for two terms.*

TEXT-BOOK: Daniels, Matthew and Williams: *Experimental Physical Chemistry* (McGraw-Hill).

Chemistry 419. *Organic Preparations (full course).* In the first part of this course the student is expected to perform some of the more difficult organic syntheses. In the second, the student will be required to work out his own methods of preparation.

LABORATORY: *Six hours per week for two terms.*

TEXT-BOOK: Cason & Rapoport: *Laboratory Text in Organic Chemistry* (Prentice-Hall).

REFERENCE BOOKS: Weygand: *Organic Preparation* (Interscience), (Wiley).
Organic Syntheses (Wiley), *Organic Reactions*
Fieser: *Experiments in Organic Chemistry* (Heath).

Chemistry 421. *Biochemistry (full course).* A view of the chemistry of carbohydrates, lipids, proteins. A study of the following topics: Enzymes, foods, vitamins, digestion, detoxication, absorption, blood, the chemistry of Respiration, metabolism, biological oxidation, energy metabolism, chemistry of tissues, urine, hormones.

LECTURES: *Two hours per week for two terms.*

LABORATORY: *Four hours per week for two terms.*

TEXT-BOOKS: Mitchell: *Text-book of Biochemistry* (McGraw-Hill).
Harrow: *Laboratory Manual of Biochemistry* (Saunders).
Peterson & Strong: *General Biochemistry* (Prentice-Hall).

REFERENCE BOOK: Harrow: *Text-book of Biochemistry* (Saunders).

Chemistry 422. *Organic Chemistry (Adv. 2) (full course).* Optical and geometrical isomerism, carbohydrates, lipids, proteins, vitamins.

LECTURES: *Two hours a week for two terms.*

REFERENCE BOOKS: Wheland: *Advanced Organic Chemistry, 2nd Edition, 1949* (Wiley).
Percival: *Structural Carbohydrate Chemistry, 1950* (Prentice-Hall).
Whistler, Smart: *Polysaccharide Chemistry, 1953* (Academic Press).
Greenberg: *Ancino Acides and Proteins, 1951* (Thomas).
Gero: *Biological Chemistry, 1952* (Blakiston).

Chemistry 423. *Electrochemistry (half course).* Electrolytic conduction and electrolysis: Faraday's laws; specific and equivalent conductance and measurement of conductance; mobility and transport number; theory of strong electrolytes; thermodynamics of cells; electrode potentials; concentration cells, liquid junction potentials; overvoltage and polarization phenomena.

LECTURES: *Two hours per week for one term.*

TEXT-BOOKS: Glasstone: *Introduction to Electrochemistry* (Van Nostrand).
Creighton: *Electrochemistry* (Wiley).

COMMERCIAL LAW

Commercial Law 101................................Full course.

Laws of contracts, sale, agency, partnership, company law and negotiable instruments.

LECTURES: *Two hours a week for two terms.*

DESCRIPTIVE GEOMETRY

Descriptive Geometry 101...........................Half course.

Descriptive Geometry—Theory of Orthographic projection, planes and their traces, oblique planes solutions, dihedral angles and practical mining problems involving principles covered in the course.

LECTURES: *One hour lecture—Two hour Lab. per week for two terms.*

TEXT-BOOK: W. G. Smith: *Practical Descriptive Geometry.*

ECONOMICS

Economics 101. Economic History of Europe............Full course.

This course consists of a detailed survey of the development of economic institutions in Europe mainly from 1700 to the present day.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Herbert Heaton: *Economic History of Europe* (Harper Bros.).

Economics 202. Principles of Economics.................Full course.

Meaning of the principle economic terms; forms of social institutions and economic activity; supply and demand analysis; production and costs; the different types of markets; the distribution of income between individuals and classes; money and banking; elements of international trade and foreign exchange; the national income; economic systems.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: G. Bach: *Economics* (Prentice-Hall).

Economics 304. Intermediate Economic Analysis.........Full course.

The theory of demand; production and cost analysis; pure and perfect competition; monopolistic competition and oligopoly; the theory of income distribution; indifference analysis; general equilibrium theory.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: John F. Due: *Intermediate Economic Analysis* (Richard D. Irwin).

Economics 306. Labour Problems and Institutions........Full course.

History of the labour movement in Europe, Canada and the U.S.; labour problems; industrial relations; the economics of labour; collective bargaining; case studies; the Social teaching of the Church.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: A. L. Gitlow: *Labour Economics and Industrial Relations* (Richard D. Irwin).

Economics 405. Money, Banking and Income Theory.....Full course.

The functions of money; money and prices; the evolution and kinds of money; the value of money; the supply of money; monetary and banking developments in Canada, the United States and the United Kingdom; the determinants of national income; the multiplier and acceleration principles; monetary and fiscal policy.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: R. C. McIvor: *Canadian Monetary, Banking and Fiscal Development* (MacMillan).
D. Hamberg: *Business Cycles* (MacMillan).

Economics 407. International Trade and Commercial Policies...............................Full course.

Historical and economic background of international trade; the theory of international trade; balance of payments; international capital movements; foreign exchange; international commercial policies; international organizations dealing with commercial policy.

LECTURES: *Three hours a week for two terms.*

Economics 408(a). Applied Statistics...................Half course.

The application of statistical methods to economic problems including: curve fitting, trend lines, seasonal variation, the measurement of cyclical fluctuations, correlation and index numbers.

LECTURES: *Three hours a week for one term.*

TEXT-BOOK: F. E. Croxton & D. J. Cowden: *Applied General Statistics* (Prentice-Hall).

Economics 408(b). Economic Fluctuations..............Half course.

Statistical aspects of the business cycle, the Kitchin, Juglar and Kondratieff cycles; monetary, over-investment, and underconsumption theories of the cycle; Schumpeter's theory; the influence of some strategic factors; an eclectic theory of the cycle; aspects of policy not covered in Economics 405.

LECTURES: *Three hours a week for one term.*

TEXT-BOOK: D. Hamberg: *Business Cycles* (MacMillan).

Economics 409. Canadian Economic History.............Full course.

The cod fisheries; the fur trade; the timber trade; immigration and land settlement; the advent of the railway; the breakdown of colonialism; reciprocity; national policy; confederation; transcontinental railways; the wheat economy; twentieth century industrialism; investment and trade patterns.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: W. T. Easterbrook & H. G. J. Aitken: *Canadian Economic History* (MacMillan of Canada).

Economics 410. History of Economic Thought...........Full course.

A detailed study of the writings of the great economists.

LECTURES: *Three hours a week for two terms.* Honours students only.

Economics 411. Advanced Economic Analysis............Full course.

This course will deal with selected topics from the general field of economic theory.

LECTURES: *Three hours a week for two terms.* Honours students only.

ENGLISH

English 101..Half course.

A study of English Literature from the beginning to the Seventeenth century tracing the growth, development and change of its various genres.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOK: Woods, Watts & Anderson: *The Literature of England* (Vol. 1).

English 102..Half course.

Composition. A practical study of prose composition on the writing of research papers and technical reports.

LECTURES: *One hour a week for two terms.*

TEXT-BOOK: Perrin: *Writer's Guide and Index to English.*

English 105..Half course.

Logic and Language. A course designed to reveal the fundamentals of prose style and secure clarity of thought and expression. It will include the syllogistic reasoning of formal logic, the techniques of inquiry and analysis, levels of meaning, feeling and thinking, and the levels of English usage.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOKS: Beardsley: *Practical Logic.*
Perrin: *Writer's Guide and Index to English.*

English 106..Half course.

Introduction to Literature. Reading and discussion of the following books:

Newman: *The uses of Knowledge*...........ed. Ward
Carlyle: *Selections*........................ed. Ball
Ruskin: *As Literary Critic*................ed. Ball
Pater: *Miscellaneous studies*..............ed. Shadwell
Wilde: *The Critic as Artist*
Cobbett: *Rural Rides—Selections*.........ed. Boas
Woodham-Smith: *Florence Nightingale*
Wordsworth: *The Prelude*
Mill: *Autobiography*
Eliot: *Adam Bede*
Wilde: *The Picture of Dorian Gray*
The Nineteenth Century—Selections........ed. Goodwin

LECTURES: *Two hours a week for two terms.*

English 201..Full course.

Principles and Practices of Literature. This course is designed to acquaint the student with the nature of Literature, its various genres, its levels, and with the basic critical positions and problems.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOKS: *Better Reading, Vol. II* (Blair and Gerber).
Poetics, Aristosle. *Critical Approaches to Literature*, Daiches.

English 203..Full course.

Shakespeare. A course involving the comedies, tragedies, and historical plays of Shakespeare, with due attention being given to his development and his times.

LECTURES: *Three hours a week for two terms.*

English 207..Full course.

Nineteenth Century Literature. A survey of texts, poetry and prose, illustrating the spiritual struggles of the century.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOKS: *Literature of England*, Vol. II (Woods, Watts and Anderson).
On Liberty, Mill, *The Uses of Knowledge* (Newman).

English 211..Full course.

Milton. A study of the major poems and the prose treatises of Milton in the light of the religious, political, and social background of the seventeenth century. Honours English only.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: *The Student's Milton*, F. A. Patterson (Ed.).

English 212..Full course.

Critical Theory. A study of the major theories of literature from Aristotle to the present. The course presumes wide reading in literature and some familiarity with history of philosophy. Honours English only.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOKS: *Criticism of Major Texts*, Bates (ED).
Anatomy of Criticism, Frye.
Insight, Lonergan.

English 213..Full course.

A study of the fuller elements concerned with the comedies, tragedies, and historical plays of Shakespeare. Honours English only.

LECTURES: *Three hours a week for two terms.*

English 301..Full course.

Drama. A study of drama as an art form in Western civilization. The course examines representative works and their cultural environment. (A knowledge of Shakespeare and of modern drama is presupposed.)

LECTURES: *Three hours a week for two terms.*

English 311..Full course.

A fuller study of drama in Western civilization. Honours English only.

LECTURES: *Three hours a week for two terms.*

English 312..Full course.

The Novel. A study of the Novel as an art form, and in its historical development. The course presumes an acquaintance with the history of Literature. Honours English only.

LECTURES: *Three hours a week for two terms.*

English 313..Full course.

The Eighteenth Century.

LECTURES: *Three hours a week for two terms.*

English 314..Full course.

The Romantic Period.

LECTURES: *Three hours a week for two terms.*

English 410...Full course.

Nineteenth Century Thought. A full study of some of the great prose writers of the century: Carlyle, Newman, Arnold, Huxley, Ruskin, Pater.

LECTURES: *Three hours a week for two terms.*

Honours English only.

English 411...Full course.

Early English Literature. A study of Mediaeval and Renaissance literature up to Shakespeare, illustrating the elements of Christian tradition, classical background and native genius. Honours English only.

LECTURES: *Three hours a week for two terms.*

English 412...Full course.

The Techniques of Literary Expression (Advanced composition). English 105 prerequisite. A theoretical and practical study of prose style to make the student familiar with and competent in the use of the main prose traditions. A reading of treatises on style, from Longinus to the present, is required.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOKS: *The Rhetoric,* Aristotle. *The Ethics of Rhetoric,* Weaver. *Mimesis,* Auerback. *Structural essentials of English,* Whitehall. *Rhetoric,* Whately. *Persuasive Speech,* Donnelly. *English Prose Style,* Read.

Honours English only.

English 415...Full course.

Four Poets: Milton, Blake, Eliot, Pratt.

LECTURES: *Three hours a week for two terms.*

Honours English only.

English 416...Full course.

The Epic. A study of the epic as a literary form. The works examined are *The Iliad, The Odyssey, The Aenead, Beowulf, The Divine Comedy.* (The course presumes a knowledge of Milton.) Readings and discussions are required in Mythology and modern critical theory.

LECTURES: *Three hours a week for two terms.*

Honours English only.

HONOURS ENGLISH Students will be required to take eight full courses in English (excluding first year courses). All the following courses will be required: English 211; English 212; English 213; English 410; English 411. Three of the following may be chosen: English 311; English 312; English 313; English 314; English 412; English 415; English 416.

ENGINEERING PROBLEMS

Engineering Problems 101...........................Half course.

Problem course designed primarily to afford practice in the solution of problems.

LECTURES: *One hour a week for two terms.*

Engineering Problems 202...........................Full course.

Application of mathematics and mechanics to simple scientific and engineering problems, with special attention to mathematical and graphical presentation of ideas, including elementary graphical statistics.

LECTURES: *Three hours a week for two terms.*

Engineering Problems 303...........................Half course.

Application of physical and chemical principles to some fundamental problems in Chemical Engineering.

LECTURES: *One hour—two hours, problems, for one term.*

FINANCE

Finance 101...Half course.

Corporation Finance. A brief survey of the various forms of business organization and their financial structures. The instruments of Corporation Finance described and analyzed.

LECTURES: *Three hours per week for one term.*

TEXT-BOOK: Gauthman & Dougall: *Corporation Financial Policy,* 3rd Edition (Prentice-Hall).

FRENCH

French 101...Full course.

General survey of French civilization and literature from the Middle Ages through the 16th and 17th centuries. French composition.

LECTURES: *Three hours a week for two terms.*

French 103...Full course.

Study of excerpts from representative modern authors in biography, the novel, and the essay.

Composition and Review of French Grammar.

LECTURES: *Two hours a week for two terms.*

French 105...Full course.

A first year College course for beginners.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOK: Turgeon: *Cours Pratique de Français* (Appleton-Century).

French 202...Full course.

General Survey of French Literature of the 19th and 20th centuries. French Composition.

LECTURES: *Three hours a week for two terms.*

French 204...Full course.

Representative Readings in Drama, Poetry and Fiction.

LECTURES: *Two hours a week for two terms.*

French 206...Full course.

A second year College course following French 105.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOK: Turgeon: *Cours Pratique de Français* (Appleton-Century).

French 301..Full course.

    French literature of the 18th century.

    LECTURES: *Three hours a week for two terms.*

    TEXT-BOOKS: Schinz: *Eighteenth Century Readings* (Holt).
             Castex et Surer: *Manuel des Etudes littéraires françaises,*
             XVIIIe. Siecle (Hachette).

    Further readings: texts to be announced.

French 401..Full course.

    The Contemporary Novel, with emphasis on the authors of *Le renou-
veau catholique.*

    LECTURES: *Three hours a week for two terms.*

    TEXT-BOOKS: Castex et Surer: *Manuel des Etudes littéraires françaises
             XXe Siècle* (Hachette).
             Bernanos, Bloy, Mauriac, Maritain, Camus, Saint-
             Exupéry.

French 402..Full course.

    French drama of the 19th and 20th centuries.

    TEXT-BOOKS: Castex et Surer: *Manuel des Etudes littéraires françaises
             XIXe et XXe Siècles* (Hachette).
             Hugo: *Hernani;* Musset: *Lorencaccio;* Dumas: *Henri III
             et sa cour;* Becque: *Les corbeaux;* Claudel: *Partage de
             Midi;* Anouilh: *l'Alouette;* Giraudoux: *Electre.*

GEOLOGY

Geology 101..Full course.

    General Geology. Elements of mineralogy, petrology, structural
geology, historical geology, physiography. Emphasis is laid on the relation-
ship of geology to engineering practice.

    LECTURES: *Two hours per week for two terms.*

    LABORATORY: *Two hours per week for two terms.*

    FIELD WORK: Several trips to points of interest in or near Montreal,
           October and early November.

    TEXT BOOK: Trefethen: *Geology for Engineers* (Van Nostrand).

GERMAN

German 101. Introductory Course for Science Students....Half course.

    LECTURES: *Two hours a week for two terms.*

    TEXT-BOOKS: Curts: *Basic German.*
             Fiedler and Sandback: *First German Course for Science
             Students.*

GREEK

Greek 101..Full course.

    Authors: Homer—*Odyssey.*
            Plato—*Apologia.*

    TEXTS: Schroder: *A Reading course in Homeric Greek.*

    Second Year Book. (Loyola Press, Chicago).

    Williamson: *Plato's Apology* (MacMillan).

Greek 202..Full course.

    Sophocles—*Oedipus Tyrannus.*

    Selections from *Demosthenes.*

    LECTURES: *Three hours a week for two terms.*

    TEXT BOOKS: Campbell & Abbott: *Sophocles 9* (Clarendon).
             Holmes: *De Corona* (Longmans).
             Abbott & Matheson: *Philippics* (Clarendon).

HISTORY

History 101. Modern Europe..........................Full course.

    A study of the Renaissance, the Reformation, the age of the Enlighten-
ment, the French Revolution, 19th century Liberalism, Nationalism, and
Imperialism, the 20th century.

    LECTURES: *Three hours a week for two terms.*

    TEXT-BOOK: R. R. Palmer: *A History of the Modern World.*

History 201. History of England.....................Full course.

    A survey of England from beginnings to present day, with the emphasis
on political and constitutional developments.

    LECTURES: *Three hours a week for two terms.*

    TEXT-BOOK: (Marcham: *History of England*).

History 211. Medieval Europe.........................Full course.

    A study of medieval institutions; the Holy Roman Empire and the
development of national states; the Christian church; the universities and
scholasticism; feudalism; the rise of the towns in their economic and social
aspects.

    LECTURES: *Three hours a week for two terms.*

History 221. England from the Beginning to 1485.........Full course.

    The coming of the Romans and the barbarians; the impact of the
Normans; the influence of the Church; the roles of the monarchy and of
parliament; social and economic features.

    LECTURES: *Three hours a week for two terms.*

History 222. Tudor and Stuart England.................Full course.

    Tudor despotism: aftermath of the Wars of the Roses; the problem of
an order and sovereignty; the English reformation; social life in Tudor
England; the expansion of England.

    Stuart monarchy: 'divine right' monarchy and its opponents; the
Puritan experiments in government, the Stuart restoration, social and
economic developments.

    LECTURES: *Three hours a week for two terms.*

History 311. Renaissance and Reformation..............Full course.

    A study in the transition from medieval to modern times; the waning
prestige of the papacy; Italism and Northern Humanism; the Protestant
revolt; the Catholic reformation; the Thirty Years' War.

    LECTURES: *Three hours a week for two terms.*

History 312a.   Age of Enlightenment and French
Revolution...........................Half course.

The development of the natural sciences and the new intellectual climate of opinion; the French Revolution; its issuance from the Enlightenment, its effects upon France and Europe.

LECTURES: *Three hours a week for one term.*

History 313a.   Liberalism and Nationalism in the
Nineteenth Century......................Half course.

A study in the forces that contributed to the shaping of the 19th century.

LECTURES: *Three hours a week for one term.*

History 321a.   England under the Hanoverians...........Half course.

A study mainly in the political and constitutional development of Georgian England; the dominance of parliament and the growth of parties.

LECTURES: *Three hours a week for one term.*

History 322a.   Victorian England......................Half course.

A study mainly in the intellectual and social history of England in the 19th century.

LECTURES: *Three hours a week for one term.*

History 331.   History of Canada........................Full course.

A study in the origins and development of Canada from colony to its present position in the world; the problems facing Canada as a nation and a world power in the mid-20th century.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: McInnis: *Canada: a Political and Social History.*

History 401.   Select Problems in European History........Full course.

A seminar in the major problems of European history, for the General Arts students in the history field of concentration.

LECTURES: *Two hours a week for two terms.*

History 411.   The World of the Twentieth Century........Full course.

A study of world history since the beginning of the century.

LECTURES: *Three hours a week for two terms.*

History 421.   British Empire and Commonwealth
since 1850................................Full course.

19th century imperialism, changing concepts of empire, the growth of the commonwealth to present day, problems remaining.

LECTURES: *Three hours a week for two terms.*

History 441.   History of the U.S.A.......................Full course.

The origins and development of the U.S.A., the American Revolution; westward expansion; Civil War; industrial expansion, emergence as a world power and accompanying problems.

LECTURES: *Three hours a week for two terms.*

History 451.   Development of Political Thought...........Full course.

A study in the development of political thought from Plato to the present day.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Elliott and McDonald: *Western Political Heritage.*

Honours History will be offered in two fields, English and European. The following course will be necessary in these fields:

ENGLISH: History 221 and 222 in Second Year.
History 321a, 322a, 331 and 421 in Third Year.
History 411, 441 and 451 in Fourth Year.

EUROPEAN: History 201 and 211 in Second Year.
History 311, 312a, 313a and 331 in Third Year.
History 411, 441 and 451 in Fourth Year.

HISTORY OF SCIENCE AND MATHEMATICS

History 418.   History of Science.........................Half course.

The beginnings of Science in the East. Egyptian Science. Science in Greece and Rome. The "Dark" Ages. Hindu and Arabian Science. Medieval Science. Science in the Renaissance. The rise of Modern Science. Science and invention in the eighteenth, nineteenth and twentieth centuries.

LECTURES: *One hour a week for two terms.*

TEXT-BOOK: Sedgwick & Tyler: *A Short History of Science.*

REFERENCE BOOKS: Moore: *History of Chemistry.*
Nordenskiold: *History of Biology.*

History 419.   History of Mathematics....................Half course.

LECTURES: *One hour a week for two terms.*

LATIN

Latin 101....Full course.

Selections of Livy's history of Rome's war with Hannibal are taken in the first term. The second term is devoted to the lyrical poetry of Horace and the Pro Marcello of Cicero. In both terms constant attention is given to practice in Latin Composition.—Bradley's Arnold, Chap. 1-34.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOKS: Allen & Greenough: *Select Orations of Cicero* (Ginn).
Bennett & Rolfe, Horace: *Complete Works* (Allyn Bacon).
Melhuish: *Livy XXI* (MacMillan).
Bradley's Arnold: *Latin Prose Composition* (Longmans).

Latin 103...Full course.

This course aims at giving students a sound working knowledge of the Latin language, so that they can write, speak and read it with reasonable ease and can tackle the original texts with some degree of confidence. The course is primarily for those who have not the necessary background for Latin 101.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Peckett & Mundy: *Principia.*

Latin 202...Full course.

In this course a study is made of Cicero's Pro Lege Manilia, the Agricola of Tacitus and some of the Satires and Epistles of Horace. Practice in the writing of Latin prose is offered.—Bradley's Arnold, Chap. 35-67.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOKS: Allen & Greenough: *Selected Orations of Cicero* (Ginn).
Bennett & Rolfe, Horace: *Complete Works* (Allyn Bacon).
Church & Brodribb: *The Agricola of Tacitus* (MacMillan).
Bradley's Arnold: *Latin Prose Composition* (Longmans).

Latin 203. This course is a continuation of Latin 103......Full course.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Peckett & Mundy: *Pseudolus Noster.*

MATERIALS OF ENGINEERING

Materials of Engineering 101.........................Half course.

An account of the sources, winning, general properties, trade practices and economics of both non-metallic and metallic materials and their products, used in engineering construction and in the manufacturing industries, with emphasis on those not discussed in more detail in subsequent courses.

LECTURES: *One hour a week for two terms.*

MATHEMATICS

Mathematics 101.....................................Full course.

(a) *Algebra and Graphs.*
Linear and quadratic functions and their graphs. Ratio and proportion. The progressions. Permutations and combinations. The binomial theorem. Mathematics of investment.

(b) *Plane Trigonometry and Analytic Geometry.*
The trigonometric functions and solution of right-angled triangles. Measurement of angles, identical relationships among the functions, trigonometric equations. Graphs of the trigonometric functions. Solution of triangles. Logarithms. Discussion of straight line and circle.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Tate: *Elementary Math. Analysis* (Pitman).

Mathematics 102.....................................Full course.

(a) *Plane Trigonometry.*
The trigonometric functions and solution of right-angled triangles. Measurement of angles, identical relations among the functions and trigonometric equations. Functions of compound angles, transformations of products and sums. Logarithms. Solution of triangles. Graphs of the trigonometric functions, general solutions of trigonometric equations and inverse functions.

LECTURES: *Three hours a week for one term.*

TEXT-BOOK: Hall and Knight: *Elementary Trigonometry.*

(b) *Analytic Geometry.*
An elementary study of the straight line and circle, with an introduction to conic sections.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOK: Smith, Salkover and Justice: *Analytic Geometry.*

Mathematics 103. Algebra..........................Full course.

Linear and quadratic functions. Polynomials and algebraic equations. Rational functions, ratio and proportion and systems of equations. Series of numbers, the progressions. Permutations and combinations. Mathematical induction. The binomial theorem and approximations. Mathematics of investment.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Rosenbach and Whitman: *College Algebra* (Ginn).

Mathematics 202. Elementary Statistics.................Half course.

Frequency distributions—Descriptive measures; Probability; Sampling; Estimation of confidence intervals; Testing hypothesis; Tests for randomness; Linear relations; Correlations.

LECTURES: *Three hours per week for one term.*

TEXT-BOOK: *Modern Elementary Statistics* by John E. Freund (Prentice-Hall).

Mathematics 203. Theory of Interest....................Half course.

Simple and compound interest; discount; annuities certain; sinking funds; bonds; elementary interpolation.

LECTURES: *Three hours a week for one term.*

TEXT-BOOK: Simpson, Pirenian and Crenshaw: *Mathematics of Finance* (Prentice-Hall).

Mathematics 205. Calculus.............................Full course.

A first course aiming to cover, as completely as possible the ordinary techniques and applications of calculus. It includes the following topics:—Limits of functions. Differentiation and integration of polynomials with applications. The Cauchy integral. Differentiation of algebraic and elementary transcendental functions with applications to kinematics, differential geometry and the solution of equations. Methods of integration and uses of the integral in the calculation of geometric and mechanical quantities. Approximate integration. Theorems concerning integration and the integrals. Power series, Taylor's series, the exponential, circular and hyperbolic functions. Partial differentiation, line integrals, multiple integration. Introductory differential equations.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: *Calculus* by R. L. Jeffrey (Univ. of Toronto Press).

REFERENCE BOOKS: Courant: *Differential and Integral Calculus.*
Goursat-Hedrick: *Mathematical Analysis*, Vol. I.
Hardy: *Integration of Functions of a Single Variable.*

Mathematics 206. Analytic Geometry of Two and Three
Dimensions........................Half course.

This course, which begins with conic sections, embraces the chief topics of plane and space geometry that are of common interest to both the science and the engineering student. It includes the following:—The principal properties of the parabola, the ellipse, the hyperbola. Coordinate transformations and polar coordinates. Method of distinguishing type of conic from its unreduced equation. Some "higher" plane curves. Parametric equations. Cartesian spherical and cylindrical coordi-

nates in space. Equations of lines, planes, cylinders, cones and surfaces of revolution. An introduction to the study for quadric surfaces.

> LECTURES: *Three hours a week for one term.*
>
> TEXT-BOOK: Smith, Salkover and Justice: *Analytic Geometry.*
>
> REFERENCE BOOKS: Eisenhart: *Coordinate Geometry.*
> R. J. T. Bell: *Coordinate Geometry of Three Dimensions.*

Methematics 207. Elementary Matrix Theory and Solid Geometry..........................Half course.

Matrix algebra, determinants, inverse of a matrix with applications in solving linear equations, equivalent matrices, linear dependence, vector spaces and linear transformations, unitary and orthogonal matrices, characteristic equation of a matrix, bilinear, quadratic and hermitian forms. Throughout this are numerous applications to solid geometry.

> LECTURES: *Three hours a week for one term.*
>
> TEXT-BOOK: Hohn: *Elementary Matrix Algebra.*

Mathematics 208. Algebra............................Full course.

(a) The first part of this course aims at an accurate working familiarity with the following topics:—Real numbers, decimal approximations and abbreviated methods of computation. Inequalities. Complex numbers. Formal and functional properties of polynomials, polynomial equations. Rational functions.

(b) The second part embraces the following topics:—Solution of cubic and quartic equations by radicals. Systems of linear equations, determinants, matrices, linear transformations (projecture and complex). Symmetric functions of the roots of an equation. Approximation of irrational numbers by rationals, impossibility of angle trisection by ruler and compass. Sequences, limits, summation of series.

> LECTURES: *Three hours a week for two terms.*
>
> TEXT-BOOK: Courant and Robbins: *What is Mathematics?*
>
> REFERENCE BOOKS: Knebelman and Thomas: *Principles of College Algebra.*
> Lovitt: *Elementary Theory of Equations.*
> Barrand and Child: *Higher Algebra.*

Mathematics 307. Algebra and Spherical Trigonometry....Half course.

This course comprises a practical treatment of spherical trigonometry and of the topics of algebra which are necessary for the study of differential equations and are not adequately treated in Maths. 203.

> LECTURES: *Three hours a week for one term.*
>
> TEXT-BOOKS: Hart and Hart: *Solid Geometry and Spherical Trigonometry.*
> Sokolnikoff: *Higher Mathematics for Engineers and Physicists*
>
> REFERENCE BOOKS: As in Maths. 208.

Mathematics 308. Algebra and Calculus................Half course.

A continuation of Maths. 205 and Maths. 307.

> LECTURES: *Two hours a week for two terms.*
>
> TEXT-BOOK: Sokolnikoff: *Higher Mathematics for Engineers and Physicists.*

Mathematics 309. Ordinary Differential Equations........Half course.

A first course with numerous applications to problems of physics, chemistry, mathematics, and engineering.

> LECTURES: *Two hours a week for two terms.*
>
> TEXT-BOOKS: Kells: *Elementary Differential Equations* (McGraw-Hill).
>
> REFERENCE BOOK: Agnew, *Differential Equations.*

Mathematics 311.....................................Full course.

(a) *Infinite Series and Integrals.* A study of the infinite processes used in applied mathematics with a view to securing an effective manipulation.

> LECTURES: *Three hours a week for one term.*
>
> REFERENCE BOOKS: Courant: *Differential and Integral Calculus.*
> Sokolnikoff: *Advanced Calculus.*
> Knopp: *Theory and Application of Infinite Series.*

(b) *Functions of a Complex Variable.*

> LECTURES: *Three hours a week for one term.*
>
> TEXT-BOOKS: Churchill: *Introduction to Complex Variables and Applications.*
> Titchmarsh: *The Theory of Functions.*

Mathematics 412.....................................Full course.

(a) *Functions of a Real Variable.*

> LECTURES: *Three hours a week for one term.*
>
> REFERENCE BOOKS: Hardy: *Pure Mathematics.*
> Goursat-Hedrick: *Mathematical Analysis.*

(b) A continuation of Math. 311b.

> LECTURES: *Three hours a week for one term.*
>
> TEXT-BOOKS: Churchill: *Introduction to Complex Variables and Applications.*
> Titchmarsh: *The Theory of Functions.*

Mathematics 414. Problems of Advanced Calculus........Full course.

A series of interesting and difficult mathematical assignments intended to integrate the students' knowledge of algebra, analytic geometry and advanced calculus.

> LECTURES AND LABORATORY: *Two hours a week for two terms.*

Methematics 415. Modern Algebra....................Full course.

The structure of number systems:—integral domains, ordering, factorization, fields, continuity, algebraic closure. Groups. Vector spaces. Matrices and linear groups. Algebra of classes. Transfinite arithmetic. Algebraic number fields. Galois theory.

> LECTURES: *Three hours a week for two terms.*
>
> TEXT-BOOK: Birkhoff and MacLane: *A Survey of Modern Algebra.*

Mathematics 416. Number Theory....................Half course.

An introduction to the problems and methods of "elementary" and analytic number theory.

> LECTURES: *Three hours a week for one term.*
>
> CHIEF REFERENCE BOOK: Hardy and Wright: *The Theory of Numbers.*

MECHANICS

Mechanics 101...Full course.

Elementary dynamics of particles; rectilinear motion; projectiles; the inclined plane and pulleys; impulse, impact and momentum of streams of particles; energy; statics, including equilibrium of concurrent and non concurrent co-planar forces; the funicular polygon; problems of simple beams and frameworks, with stress analysis by the method of sections.

LECTURES: *Two hours a week for two terms.*

Mechanics 202...Full course.

Equilibrium of forces; friction; graphical statics; bending moment and shear; analytical statics; relative velocities; variable rectilinear and curvilinear motion; simple harmonic motion with applications to pendulums and springs; kinetic energy; liquid pressure. Translation and rotation of solids, including problems of rolling on plane surfaces; compound pendulums; reciprocating machinery with analysis of internal stresses; angular momentum and impact; introduction to the gyroscope with problems and examples of application.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Poorman: *Applied Mechanics*

Mechanics 211.   Statics and the Dynamics of a Particle....Half course.

Vector algebra, kinematical relations, Newton's Laws, work and energy, centres of gravity, statics of a particle, statics of a rigid lamina, dynamics of a particle.

LECTURES: *Three hours per week for one term.*

TEXT-BOOK: MacMillan: *Statics and the Dynamics of a Particle* (Dover).

Mechanics 303.   Introduction to Theoretical Mechanics.....Full course.

Fundamental principles, statics of a particle and of a rigid body, work and energy, gravitation, principle of virtual work, a particle in a uniform force field, harmonic oscillator, motion of a system of particles, plane motion of a rigid body, central force fields, motion of a particle in an accelerated reference frame, motion under constraints, motion of a rigid body in three dimensions.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Becker: *Introduction to Theoretical Mechanics.*

Mechanics 404.   Advanced Course in Classical Mechanics...Full course.

D'Alembert's principle, variational principles, Lagrange's equations, Hamilton's principles, scattering in central-force field, kinematics of rigid body motion, rigid body equations of motion, special relativity, Hamilton's equations of motion, canonical transformations, Hamilton-Jacobi theory, small oscillations, continuous systems and fields.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK: Goldstein: *Classical Mechanics.*

Mechanics 405..Full course.

Selected topics from vector analysis, classical mechanics, partial differential equations, matrices and calculus of variations to prepare Chemistry students for a study of quantum mechanics.

LECTURES: *Three hours a week for two terms.*

TEXT-BOOK*Statics and the Dynamics of a Particle* (Dover).

MECHANICAL DRAWING

Mechanical Drawing 101............................Full course.

Selection and use of drafting instruments and materials; lettering, conventional practices and symbols, sectional views and methods of reproduction.

LABORATORY: *Three hours a week for two terms.*

TEXT-BOOK: French: *Engineering Drawing.*

Mechanical Drawing 201...........................Half course.

Geometrical constructions of eclipses, hyperboral cycloids, involutes, etc. Pictorial drawings including isometric oblique, perspective drawing. Development and intersections of surfaces. Free hand sketching.

LECTURES: *1 hour Lecture—2 hours Lab. per week for two terms.*

TEXT-BOOK: French: *Engineering Drawing.*

Mechanical Drawing 202...........................Full course.

Engineering drafting room procedure and technique in the production of working drawings of machinery.

LABORATORY: *Three hours a week for two terms.*

TEST-BOOK: French: *Engineering Drawing.*

MECHANICS OF MACHINES

Mechanics of Machines 101..........................Half course.

Constrained motion; instant centers; centrodes; analysis and classification of simple mechanisms, including the quadric-crank, the slider-crank and wheel trains; design of involute gear teeth; belts and flexible couplings; cam design.

LECTURES: *Two hours a week for one term.*

LABORATORY: *Two hours a week for one term.*

MINERALOGY

Mineralogy 101...Full course.

Lectures in the first part of the course deal with the physical properties and chemical composition of minerals, and with crystallography. The more important ores, industrial minerals, and rock-forming minerals are then described, with particular emphasis in the case of economic minerals, on uses and sources of supply.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOK: Kraus, Hunt and Ramsdell: *Mineralogy* (McGraw-Hill).

Mineralogy 202.   Determinative Mineralogy...........Half course.

Instruction is given in methods for the determination of the constituents of minerals by blowpipe analysis and related chemical tests. These tests and general physical characteristics are then applied in the identification of some 150 mineral species.

LABORATORY: *Three hours a week for one term.*

Mineralogy 203.   Mine Projections.....................Half course.

The use of descriptive geometry as applied to mining problems.

LECTURES: *Three hours a week for one term.*

PHILOSOPHY

Philosophy 101. Logic...............................Half course.

The science which directs the operations of the intellect in the attainment of truth. This includes Dialectics, which treats of the correct ways of thinking, and Epistemology, which considers the conformity, truth and certitude of human knowledge, and discusses the doctrines of Scepticism, Idealism, Subjectivism and Relativism.

LECTURES: *Two hours a week for two terms.*
TEXT-BOOKS: Oesterle: *Logic* (Prentice-Hall).
Hassett, Mitchell and Monan: *The Philosophy of Human Knowing.*
REFERENCE BOOK: Cunningham: *Epistemology.*

Philosophy 201....Half course.

A first introduction to philosophy. The primary purpose of the course is to present the elements of philosophy with simplicity and clarity.

LECTURES: *One hour a week for two terms.*
TEXT-BOOKS: Sullivan: *An Introduction to Philosophy* (Bruce).

Philosophy 202. Metaphysics and Logic..................Full course.

This science is the one natural wisdom, and has as its object the understanding of reality in its ultimate intelligibility. Since reality includes God and the physical universe, the ultimate questions of Theodicy and Cosmology find their place here. The problem of the one and the many, limitation, causality, substance and accident, the analogy of being, the nature of ontological truth, good and evil are discussed, and the various opinions are considered before the solution is proposed. In order to familiarise the student with the methods of reasoning used in Philosophy, a series of lectures in Logic is given at the start of this course.

LECTURES: *Four hours a week for two terms.*
TEXT-BOOKS: Renard: *Philosophy of Being* (Bruce).

Philosophy 212. Metaphysics and Logic.................Full course.

This course is in substance almost equivalent to Philosophy 202.

LECTURES: *Three hours a week for two terms.*
TEXT-BOOKS: Renard: *Philosophy of Being* (Bruce).
Pegis: *Introduction to St. Thomas Aquinas* (Random).

Philosophy 303. Psychology and Epistomology...........Full course.

The Philosophical study of Man. This course treats of the unity of Man, his vegetative life, external and internal sensation, intellect, the nature of knowledge; sense appetite, the will, habits, the human soul; the nature, origin and destiny of man. This course includes a study of the main problems of Epistomology.

LECTURES: *Four hours a week for two terms*
TEXT-BOOKS: Klubertanz: *The Philosophy of Human Nature.*
Pegis: *Introduction to St. Thomas Aquinas.*

Philosophy 313. Psychology and Epistomology...........Full course.

The Philosophical study of Man. This course treats of the unity of Man, his vegetative life, external and internal sesation, intellect, the nature of knowledge. At this point some of the main problems of Epistemology are discussed, followed by the study of sense appetite, the will, habits, the human soul, and the nature, origin and destiny of Man.

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LECTURES: *Three hours a week for two term.*
TEXT-BOOKS: Klubertanz: *The Philosophy of Human Nature.*
Pegis: *Introduction to St. Thomas Aquinas.*

Philosophy 323 Metaphysics..........................Half course.

Act and Potency; The Notion of Being; The Causes and the Existence of the First Cause; Good and Evil; The Notion of Substance and Accidents.

TEXT-BOOK: *The Philosophy of Being* (Renard).
LECTURES: *Three hours a week for one term.*

Philosophy 324. Psychology..........................Half course.

The Problem of Life; Vegetable and Sense Life—External and Internal Senses; The Intellect—its operations and its nature; The Will and its Freedom; The Rational Soul—spirituality; origin; immoratility; The Unity of Man.

TEXT-BOOK: *Philosophical Psychology* (J. F. Donceel, S.J.), Sheed & Mard, N.Y.
LECTURES: *Three hours a week for one term.*

Philosophy 404. (a) General Ethics......................Full course.

General Principles of Morality. Ethics may be defined as the "philosophic science which establishes the moral order of human acts." This first section deals with the end of man, the human act, morality, duty and law, sanction and merit, properties of the Natural Law, conscience, virtue and vice. These principles are used in the remainder of the course to study the particular obligations which arise from the Natural Law.

(b) Applied Ethics. (1) Principles of Individual Ethics, Man's private obligations toward God, self and his fellow man form the matter of the second section. It treats of religion, duties with regard to one's soul and body, certain external advantages to the individual, our fellow man, justice and right, objects of natural rights, property and property titles, contracts, non-juridical obligations. (2) Principles of Social Ethics. The third section covers man's obligations as a social being. It studies man's social nature, conjugal society, the family, the state, the authority of the state, the constitution of a state, the functions of government, scope of civil legislation, executive and juridical powers, duties of citizens, international relations, occupational groups.

LECTURES: *Four hours a week for two terms.*
TEXT-BOOKS: Higgins: *Man as Man* (Bruce).
Leibell: *Readings in Ethics* (Loyola Univ. Press).

Philosophy 414. This course is substancially equivalent to Philosophy 404.....................Full course.

LECTURES: *Three hours a week for two terms.*
Fagothey, *Right and Reason* (C. V. Mosby).

Philosophy 405. History of Ancient Greek Philosophy.....Half course.

LECTURES: *One hour a week for two terms.*

Philosophy 406. History of Mediaeval and Modern Philosophy..........................Half course.

LECTURES: *One hour a week for two terms.*

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PHYSICS

Physics 101. General College Physics....................Full course.

An introductory course covering the elements of mechanics, sound, heat, light and electricity.

LECTURES: *Three hours a week for two terms.*

LABORATORY: *Three hours a week for two terms.*

TEXT-BOOK: Sears & Zemansky: *College Physics* (Addison-Wesley).

LABORATORY MANUAL: Keys, Watson and McPherson: *Experimental Physics.*

Physics 202....Full course.

A more advanced course in heat, light and sound, but not requiring a knowledge of more than elementary mathematics.

LECTURES: *Three hours a week for two terms.*

LABORATORY: *Two hours a week for two terms.*

TEXT-BOOK: Marshall and Pounder: *Physics.*

LABORATORY MANUAL: Keys and Terroux: *Heat, Sound and Light.*

Physics 303. Electricity and Magnetism..................Full course.

A theoretical and experimental course covering magnetism, electrostatics, current electricity, electromagnetic induction, electrodynamics, simple circuits and elementary electronics.

LECTURES: *Three hours a week for two terms.*

LABORATORY: *Three hours a week for two terms.*

TEXT-BOOK: Sears: *Electricity and Magnetism.*

Physics 304. Theory of Measurements..................Half course.

A training in accuracy, approximate methods and probable error of calculations. A weekly assignment of problems.

LECTURES: *One hour a week for two terms.*

Physics 305. Advanced course in Heat..................Full course

Kinetic theory of gases, perfect gas law; Maxwells Distribution law; Van der Waals equation; transport phenomena in gases; viscosity, thermal conductivity, diffusion; the First Law of Thermodynamics; methods of determining J. Carnot Cycle; Kelvin Scale; the Second Law of Thermodynamics; Shaw's Jacobian analysis and introduction to the thermodynamic variable. Application: latent heat equations; surface tension; e.m.f. of chemical cells; thermoelectric phenomena; thermionic emission; tension and compression of rods.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOK: Sears: *Introduction to Thermodynamics.*

REFERENCE BOOKS: Kiefer and Stuart: *Engineering Thermodynamics.*
Lewis and Randall: *Thermodynamics.*

Physics 408. Electron-tube Circuits.....................Full course.

Complex number methods of solving A.C. circuits; network theorems, characteristics of electron tubes, triodes as circuit elements, basic amplifier principles, feedback in amplifiers, rectifiers, special electronic circuits, oscillators, heavily biased relaxation oscillators, saw-tooth sweep generators, electronic instruments.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOK: Seely: *Electron Tube Circuits.*

LABORATORY: *Four hours a week for two terms.*

Physics 409. D-C Motors............................Half course

An elementary course in electrical engineering.

LECTURES: *Two hours a week for one term.*

TEXT-BOOK: *Principles and Practice of Electrical Engineering* (Gray and Wallace).

Physics 410 Atomic Physics.........................Half course

Advent of quantum mechanics and relativity; Atoms and quanta; Spectroscopy; the nuclear atom; Rutherford, Bohr theory of hydrogen spectrum; Bohr-Sommerfeld quantization; Uncertainty principle; further details of atomic spectra; Zeeman effect.

LECTURES: *One hour for two terms.*

TEXT-BOOK: Herzberg: *Atomic spectra and Structure.*

PUBLIC SPEAKING

A graduated course with exercises in vocal drill, expression, gesture, interpretation and delivery.

LECTURES: *One hour a week for two terms.*

SPANISH

Spanish 101....Full course.

Introductory course in Spanish grammar and elementary Spanish reading.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOKS: Keniston: *Learning Spanish* (Holt).
Grismer & Olmsted: *A México por Automovil.*

Spanish 202....Full course.

Reading from modern Spanish and Spanish-American authors. Spanish Composition.

LECTURES: *Two hours a week for two terms.*

TEXT-BOOKS: Tarr and Centeno: *Spanish Review Grammar* (Appleton Century Crofts).
Ashburn: *Selected Spanish Short Stories* (Crowell).

SOCIOLOGY

Sociology 101...Full course.

(1) *The Study of Sociology.* The Nature and Development of Sociology, The Catholic Viewpoint in Sociology.

(2) *Man's Biological Heritage.* Individual Heredity, Heredity and Environment, Racial Heredity, Race Mixture and Race Prejudice.

(3) *Man's Cultural Heritage.* Culture and Culture Change, Early Prehistoric Backgrounds, The Dawn of Civilization, Culture of Primitives.

(4) *Man's Social Nature.* The Physical Basis of Personality, Group Interactions and Personality, Major Personality Maladjustments, Minor Personality Maladjustments.

(5) *Collective Behavior.* The Basis for the Social Processes; Competition, Conflict and Cooperation; Accommodation, Assimilation and Stratification; Social Control.

(6) *The Community.* Human Ecology; Population and Migration; Types of Communities; Urban and Rural.

(7) *Social Institutions.* Economic Institutions, Governmental Institutions, Educational Institutions, Religious Institutions, The Family.

(8) *Social Maladjustments*. Social Disorganization; Poverty and Dependency; Crime and Punishment.

Two hours a week for two terms.
TEXT-BOOKS: Murray: *Introductory Sociology* (Crofts).
A Code of Social Principles (C.S.G., Oxford).
Zahn: *Readings in Sociology*.

SUMMER SCHOOL

Summer School. A course in Mechanical Drawing and Machine Shop Work for a period of four weeks.

SUMMER ESSAY

Students entering the Senior Year of the Engineering Course must submit an essay. The most suitable subject for the essay is a topic drawn from the experience of the student during his summer work, but a similar topic connected with any engineering, scientific or industrial work with which he is familiar is acceptable. This essay should be approximately two thousand words in length and should be handed in not later than October 3rd.

SURVEYING

Surveying 101..................................Half course.

Units of measurements; the chain-uses, errors, corrections and compensation; the level—types and limitations; differential and profile levelling; contour surveying; the transit—the vernier, horizontal and vertical angles, deflections, double deflections, azimuths, traverses and meridians; the compass—bearings, magnetic variation and declination and dip.

LECTURES: *Two hours a week for one term.*
REFERENCE BOOKS: Davis and Foote: *Surveying* (McGraw-Hill), or
Breed: *Surveying* (Wiley).

Surveying 102. *Field Work.* Practice in chaining and taping; use of the level and of the transit; complete survey of a tract of land.

Four Weeks' Summer School course in field work.

Surveying 203..................................Full course.

Adjustments of level and of transit: theory and use of the polar planimeter; latitudes and departures; areas; plotting co-ordinates; partition of land; missing sides; stadia surveying; cross-sections, grids and slope stakes; circular curves, vertical curves.

LECTURES: *Two hours a week for two terms.*
REFERENCE BOOK: David and Foote: *Surveying* (McGraw-Hill).

Surveying 204. *Field Work.* Preliminary railway or highway survey with transit, profile and topography parties; plane table, hand level and stadia; spiral curves; cross-sectional simple triangulation networks; reciprocal levelling; soundings; current-meter surveys; introduction to mine surveying; small geological survey with Brunton compass and chain; astronomical observations.

Four weeks' Summer School.

Surveying 310..................................Half course.

Surveying Problems. Earthwork calculations using polar planimeter; problems in surveying.

Three hours a week for one term.
TEXT-BOOK: Sloane and Montz: *Elements of Topographic Drawing* (McGraw-Hill).

THEOLOGY

Theology 101. The Life of Christ......................Half course.

Introduction to the Gospels: their origin, characteristics, credibility, inspiration; canon of the Bible. Outline of Jewish history; Jewish world at the time of Christ; the political, social and religious situation; the idea of God and the nature of the Messianic hope; chronology and outline of the life of Christ.

The Public Life of Christ; from the baptism of John the Baptist to the Last Supper; revelation of Christ as Messias and Son of God, as humanity's Prophet and King; juridical structure of His Kingdom, the Church. Dogmatic summary: Christology, the divinity and humanity of Christ; Christological heresies; consequences of the hypostatic union; the Church as a visible society; its membership, teaching authority, infallibility, jurisdiction; primacy of the Pope; the four marks of the true Church.

LECTURES: *Two hours a week for two terms.*
TEXT-BOOK: Fernan: *Christ as Prophet and King*.

Theology 202. The Redemptive Work of Christ..........Half course.

History of mankind's redemption: brief survey of Christ's life showing that it was orientated towards Calvary and the resurrection; the Last Supper; the Eucharist as a sacrament and a sacrifice. Passion, death and risen life of Christ. The Sacrament of Penance.

Doctrine of the Redemption; original justice and original sin. Liturgy and meaning of baptism. Nature of sacrifice; pre-Christian sacrifices. Sacrifice of the Cross and Christ's priesthood: His death as a sacrifice, as vicarious satisfaction, as a redemption. Epistle to the Hebrews. Sacrifice of the Mass as a true sacrifice: its nature, effects and value; liturgy of the Mass.

LECTURES: *Two hours a week for two terms.*
TEXT-BOOK: Fernan: *Christ Our High Priest*.

Theology 303. The Mystical Body of Christ, The Church..Half course.

Historical study of the Church, the Mystical Body of Christ, and the role of the Holy Spirit, as recorded in the Acts of the Apostles. The sacraments of Holy Orders and Confirmation. The Councils of the Church. The following Epistles of St. Paul are assigned for reading and briefly interpreted in class: the Epistles to the Galatians, Philippians and Thessalonians, to Timothy and to Titus.

Doctrinal study of the Church and the Holy Spirit. The Epistles to the Corinthians, Colossians and Ephesians. The Doctrine of the Trinity; the encyclical of Pius XII on the Mystical Body of Christ.

LECTURES: *Two hours a week for two terms.*
TEXT-BOOK: Fernan: *The Mystical Christ*.

Theology 404. The Supernatural Life in the Christian......Half course.

The doctrine of justification in the epistle to the Romans. Nature of the supernatural life: actual grace; act of faith; sanctifying grace; theological and moral virtues; gifts of the Holy Spirit.

Asceticism, or the development of the supernatural life: nature of Christian perfection; commandments and counsels; three ways of the spiritual life; nature, methods and degrees of mental prayer.

LECTURES: *Two hours a week for two terms.*
TEXT-BOOK: Murray, Fernan and Messemer: *Christ in His Members*.

SCHOLASTIC YEAR

1959 - 1960

FEES

Tuition

Arts (General course)

Freshman................	$175.00 per half year	$350.00 per year
Sophomore..............	175.00 " " "	350.00 " "
Junior...................	175.00 " " "	350.00 " "
Senior...................	175.00 " " "	350.00 " "

Arts (with pre-Medical subjects)

Freshman................	$175.00 per half year	$350.00 per year
Sophomore..............	175.00 " " "	350.00 " "
Junior...................	200.00 " " "	400.00 " "
Senior...................	200.00 " " "	400.00 " "

Science and Engineering

Freshman................	$200.00 per half year	$400.00 per year
Sophomore..............	200.00 " " "	400.00 " "
Junior...................	200.00 " " "	400.00 " "
Senior...................	200.00 " " "	400.00 " "

Commerce

Freshman................	$175.00 per half year	$350.00 per year
Sophomore..............	175.00 " " "	350.00 " "
Junior...................	175.00 " " "	350.00 " "
Senior...................	175.00 " " "	350.00 " "

RESIDENCE

Room and Board............................	$720.00

STUDENT ACTIVITY

Student Athletics, Student Debating, Student Drama, Student Library, Student Publications...	$ 30.00

Special

Registration Fee (payable on first entrance only)...	$ 5.00
Late Registration Fee.........................	5.00
Surveying 102, Summer Course.................	35.00
Laboratory Breakage Deposits (returnable) Arts (pre-Medical)—	
Sophomore.................................	5.00
Junior and Senior...........................	20.00

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FEES Cont.

Science and Engineering—	
Freshman...................................	$ 10.00
Sophomore, Junior and Senior Chemistry.......	20.00
Sophomore, Junior and Senior Physics..........	15.00
Sophomore, Junior and Senior Engineering......	15.00
Supplemental examinations, each.................	5.00
Supplemental examinations on other than assigned days..	10.00
Transcript (Full).............................	1.00
Transcript (Partial)..........................	.50
Guarantee deposit from resident students (returnable).......................................	50.00
Resident students staying during the Christmas holidays, per day...........................	3.50
Infirmary, per day............................	4.00
Graduation Fee:	
Arts students...............................	$ 10.00
Science and Engineering students..............	18.00
Commerce students...........................	18.00

REMARKS

1. No deduction is made for a continuous absence less than a quarter.

2. No room will be reserved for any student unless he makes a deposit of $50.00 against the room fee. This deposit will be returned if and only if the application for the room is cancelled by September 1st. If a room is occupied at the beginning of a term it must be paid for the entire term.

3. No student will be promoted from one class to another, or receive any degree, diploma or certificate whatsoever, until his financial accounts have been previously and satisfactorily settled.

4. The College will pay no debt contracted by the students unless a deposit is left with the Bursar. Large sums of money should not be left in the keeping of the students.

5. Any injury done to the walls or furniture of the College will be charged to the offender's account.

6. Drafts, cheques, money-orders, etc., should be made payable at par to "Loyola College" and addressed to The Bursar, Loyola College, Montreal.

N.B.—Consult Registrar concerning rates of board and room for students from outside Canada and United States.

FEES MUST BE PAID HALF-YEARLY IN ADVANCE:
AT REGISTRATION AND JANUARY 15th.

NO ONE WILL BE ADMITTED TO LECTURES
OR LABORATORIES UNTIL FEES ARE PAID.

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